PUB.DIM-704

Canon

Digital Video Camcorder
Instruction Manual

English

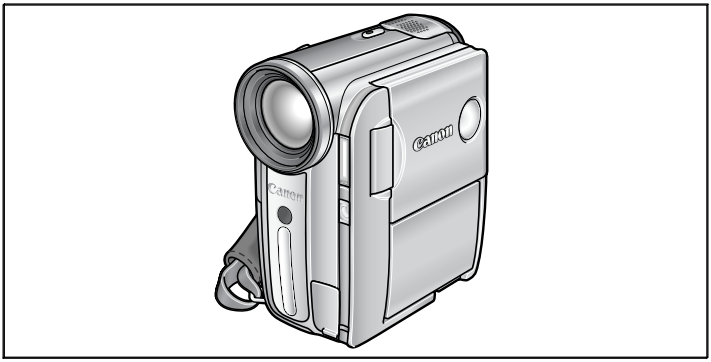
Caméscope numérique
Manuel d'instruction

Français

Videocámara digital
Manual de Instrucciones

Español

optura 600



Mini DV Digital Video Cassette

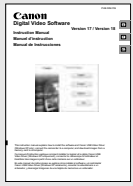
BUBBLE JET DIRECT

DIRECT PRINT

PictBridge

Please read also the following instruction manual.
Veuillez lire aussi le manuel d'instruction suivant.
Lea también el manual de instrucciones siguiente.

- **Digital Video Software**



NTSC

Important Usage Instructions

WARNING!



TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

WARNING!



TO REDUCE THE RISK OF ELECTRIC SHOCK AND TO REDUCE ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.

COPYRIGHT WARNING:

Unauthorized recording of copyrighted materials may infringe on the rights of copyright owners and be contrary to copyright laws.

Digital Video Camcorder, OPTURA600 A systems

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and use in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Use of shielded cable is required to comply with class B limits in Subpart B of Part 15 of FCC Rules.
Do not make any changes or modifications to the equipment unless otherwise specified in the manual.
If such changes or modifications should be made, you could be required to stop operation of the equipment.

Canon U.S.A. Inc.
One Canon Plaza, Lake Success, NY 11042, U.S.A.
Tel No. (516)328-5600

CAUTION:
TO PREVENT ELECTRIC SHOCK, MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

Important Warning







CAUTION:
TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure, that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point, within an equilateral triangle, is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

IMPORTANT SAFETY INSTRUCTIONS

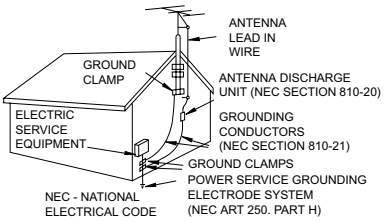
In these safety instructions the word “product” refers to the Canon Digital Video Camcorder OPTURA600 A and all its accessories.

1. Read Instructions — All the safety and operating instructions should be read before the product is operated.
2. Retain Instructions — The safety and operating instructions should be retained for future reference.
3. Heed Warnings — All warnings on the product and in the operating instructions should be adhered to.
4. Follow Instructions — All operating and maintenance instructions should be followed.
5. Cleaning — Unplug this product from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. The product should be cleaned only as recommended in this manual.
6. Accessories — Do not use accessories not recommended in this manual as they may be hazardous.
7. Avoid magnetic or electric fields — Do not use the camera close to TV transmitters, portable communication devices or other sources of electric or magnetic radiation. They may cause picture interference, or permanently damage the camera.
8. Water and Moisture — Hazard of electric shock — Do not use this product near water or in rainy/moist situations.
9. Placing or Moving — Do not place on an unstable cart, stand, tripod, bracket or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product.
 A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.



10. Power Sources — The CA-570 Compact Power Adapter should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. Regarding other power sources such as battery power, refer to instructions in this manual.
11. Polarization — The CA-570 Compact Power Adapter is equipped with a polarized 2-prong plug (a plug having one blade wider than the other).
 The 2-prong polarized plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug still fails to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
12. Power Cord Protection — Power cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to plugs and the point from which the cords exit the product.
13. Outdoor Antenna Grounding — If an outside antenna is connected to the product, be sure the antenna is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI / NFPA No. 70—1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See figure 1.

Fig. 1 EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE



14. Lightning — For added protection of this product during a lightning storm, or when it is left unattended and unused for long periods of time, disconnect it from the wall outlet and disconnect the antenna. This will prevent damage to the product due to lightning and power-line surges.
15. Overloading — Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.
16. Objects and Liquid Entry — Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Be careful not to spill liquid of any kind onto the product.
17. Servicing — Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
18. Damage Requiring Service — Disconnect this product from the wall outlet and all power sources including battery, and refer servicing to qualified service personnel under the following conditions:
 a. When the power-supply cord or plug is damaged.
 b. If any liquid has been spilled onto, or objects have fallen into, the product.
 c. If the product has been exposed to rain or water.
 d. If the product does not operate normally even if you follow the operating instructions. Adjust only those controls that are covered by the operation instructions. Improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
 e. If the product has been dropped or the cabinet has been damaged.
 f. When the product exhibits a distinct change in performance. This indicates a need for service.
19. Replacement Parts — When replacement parts are required, be sure the service technician has used replacement parts that are specified by Canon or that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.
20. Safety Check — Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in safe operating order.

Using any device other than the Compact Power Adapter CA-570 may damage the camcorder.

When replacement of power supply is required, please return it to the responsible nearest Canon Service Center and please replace it with the same type number CA-570.

The Adapter can be used with a power supply between 100 and 240 V AC. For areas where 120 V AC power is not used, you will need a special plug adapter. Contact your nearest Canon Service Center for further information.

Use only CSA/UL Certified power supply cord set, Polarized, Type SPT-2 or heavier, minimum No. 18 AWG copper, rated 125 or 250 V, minimum ,P A, minimum 6 ft (1.8 m), maximum 10 ft (3 m) long.

This Class B digital apparatus complies with Canadian ICES-003.

Using this Manual

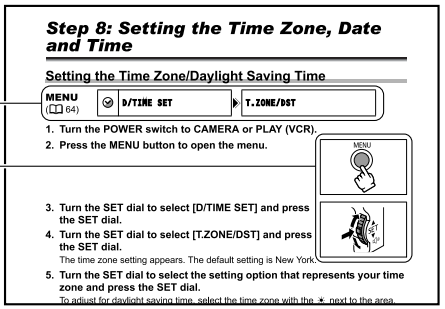
Thank you for purchasing the Canon OPTURA600. Please read this manual carefully before you use the camcorder and retain it for future reference.

Symbols and References Used in This Manual

- : Precautions related to the camcorder operation.
- : Additional topics that complement the basic operating procedures.
- 🕮 : Reference page number.
- Capital letters are used to refer to buttons on the camcorder or the wireless controller.
- [] are used to refer to menu items displayed on the screen.
- "Screen" refers to the LCD and the viewfinder screen.

Menu item showing at its default position

Button and switches to be operated



About the Operating Modes

The operating modes are determined by the position of the POWER switch and the TAPE/CARD switch.

Operating Mode	POWER Switch	TAPE/CARD Switch	Screen Display	Main Operation	🕮
CAMERA•	CAMERA			Records movies on a tape.	28
PLAY(VCR)•	PLAY (VCR)			Plays back the tape.	35
CAMERA•	CAMERA			Records still images/ movies on a memory card.	30
PLAY(VCR)•	PLAY (VCR)			Plays back the memory card.	37

Trademark Acknowledgements

- Mini DV is a trademark.
- SD is a trademark.
- Windows® is a registered trademark of Microsoft Corporation in the United States and/or other countries.
- Macintosh and Mac OS are trademarks of Apple Computer, Inc., registered in the United States and other countries.
- HDV is a trademark of Sony Corporation and Victor Company of Japan, Limited (JVC).
- Other names and products not mentioned above may be registered trademarks or trademarks of their respective companies.

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Do's & Don'ts

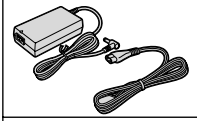
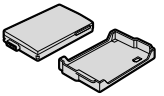
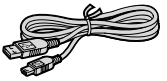
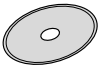
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Checking Supplied Accessories

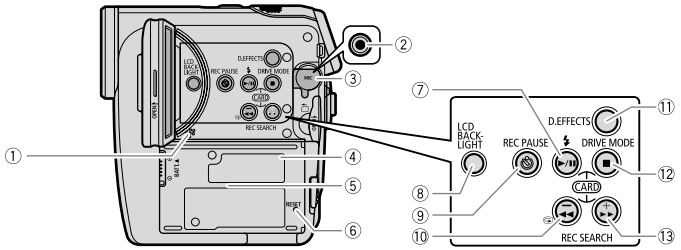
CA-570 Compact Power Adapter (incl. power cord) 	BP-308 Battery Pack 	WL-D85 Wireless Controller 	Lithium Button Battery CR2025 for Wireless Controller 
Lens Cap and Lens Cap Cord 	MTC-100 Multi Cable 	IFC-300PCU USB Cable 	SDC-16M SD Memory Card 
DIGITAL VIDEO SOLUTION DISK 			

The serial number of this product can be found at the battery attachment unit of the camcorder. Write down the number and other information here and retain this book as a permanent record of your purchase to aid identification in case of theft.

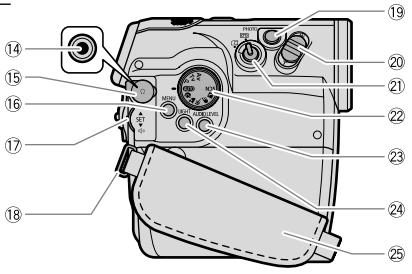
Date of Purchase: Model Name: OPTURA600 A
Purchased From: Serial No.:
Dealer Address:
Dealer Phone No.:

Components Guide

Left side view

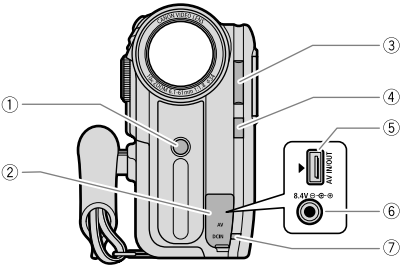


Right side view

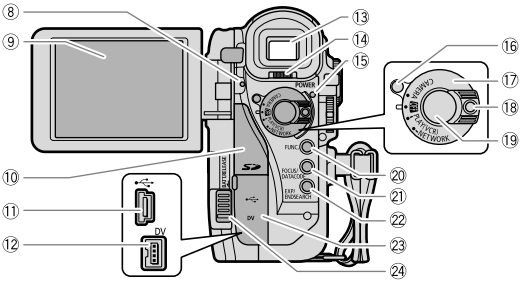


① Speaker (🕮 38)	⑬ REC SEARCH + button (🕮 29) / ▶▶ (fast forward) button (🕮 36) / CARD + button (🕮 37)
② MIC terminal (🕮 51)	⑭ 🎧 (phones) terminal (🕮 38)
③ Terminal cover	⑮ Terminal cover
④ Serial number	⑯ MENU button (🕮 64)
⑤ Battery attachment unit (🕮 17)	⑰ SET dial (🕮 38, 52, 64)
⑥ RESET button (🕮 126)	⑱ Strap mount (🕮 142)
⑦ ϟ (flash) button (🕮 84) / ▶/❚❚ (play/pause) button (🕮 35)	⑲ PHOTO button (🕮 30)
⑧ LCD BACKLIGHT button (🕮 24)	⑳ Zoom lever (🕮 33)
⑨ ⏲ (self-timer) button (🕮 50) / REC PAUSE button (🕮 98, 100)	㉑ TAPE/CARD switch (🕮 5)
⑩ REC SEARCH – button (🕮 29) / ⏎ (record review) button (🕮 29) / ◀◀ (rewind) button (🕮 35) / CARD – button (🕮 37)	㉒ Mode dial (🕮 40)
⑪ D.EFFECTS button (🕮 57)	㉓ AUDIO LEVEL button (🕮 71)
⑫ DRIVE MODE button (🕮 88) / ■ (stop) button (🕮 35) /	㉔ LIGHT button (🕮 49)
	㉕ Grip belt (🕮 22)

Front view

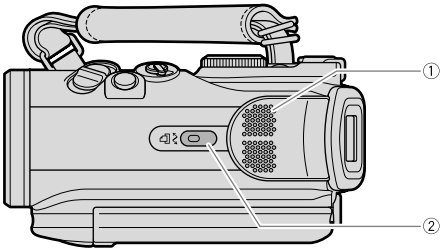


Back view

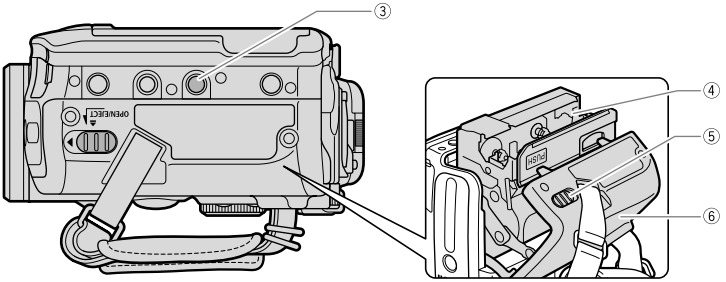


① Remote sensor (📖 23)	⑮ POWER indicator (📖 28, 30)
② Terminal cover	⑯ Lock button (for NETWORK mode) (📖 125)
③ Flash (📖 84)	⑰ POWER switch (📖 5, 125)
④ Mini video light (📖 49)	⑱ Lock button (for POWER switch) (📖 28, 30)
⑤ AV terminal (📖 39)	⑲ Start/stop button (📖 28, 30)
⑥ DC IN terminal (📖 17)	⑳ FUNC. button (📖 52)
⑦ Charge indicator (📖 17)	㉑ FOCUS button (📖 48) / DATA CODE button (📖 77)
⑧ Card access indicator (📖 30)	㉒ EXP button (📖 47) / END SEARCH button (📖 78)
⑨ LCD screen (📖 24)	㉓ Terminal cover
⑩ Memory card slot (📖 21)	㉔ BATT. RELEASE button (📖 17)
⑪ USB terminal (📖 108, 121)	
⑫ DV terminal (📖 97, 100)	
⑬ Viewfinder (📖 22)	
⑭ Dioptric adjustment lever (📖 22)	

Top view

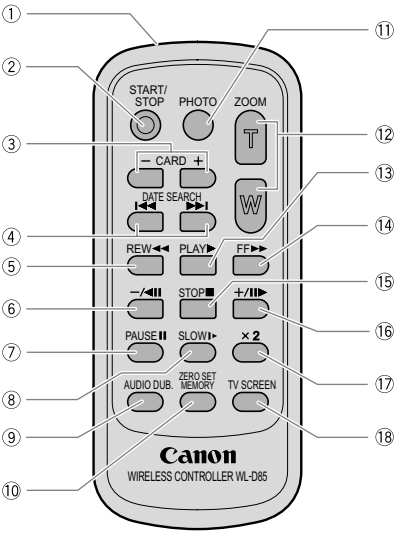


Bottom view



① Stereo microphone	④ Cassette compartment (📖 20)
② 🖶 (print/share) button (📖 109, 121)	⑤ OPEN/EJECT ⏏ switch (📖 20)
③ Tripod socket (📖 34)	⑥ Cassette compartment cover (📖 20)

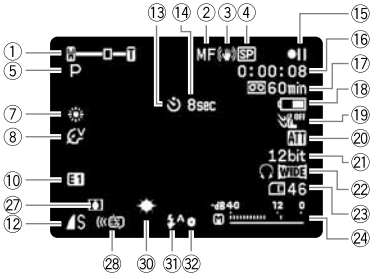
Wireless Controller WL-D85



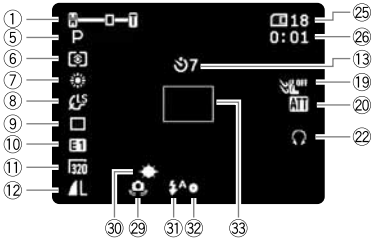
① Transmitter	⑩ ZERO SET MEMORY button (📖 79)
② START/STOP button (📖 28, 30)	⑪ PHOTO button (📖 30)
③ CARD –/+ buttons (📖 37)	⑫ Zoom buttons (📖 33)
④ DATE SEARCH ⏮/⏭ buttons (📖 80)	⑬ PLAY ▶ button (📖 35)
⑤ REW ◀◀ button (📖 35)	⑭ FF ▶▶ button (📖 36)
⑥ –/◀ II button (📖 36)	⑮ STOP ■ button (📖 35)
⑦ PAUSE II button (📖 36)	⑯ +/II ▶ button (📖 36)
⑧ SLOW I► button (📖 36)	⑰ x 2 button (📖 36)
⑨ AUDIO DUB. button (📖 104)	⑱ TV SCREEN button (📖 68)

Screen Displays

When recording movies on a tape (CAMERA•)



When recording on a memory card (CAMERA•)



Remaining battery charge

The battery symbol indicates the charge status of the battery pack.



- " " starts flashing in red when the battery pack is empty.
- When you attach an empty battery pack, the power may turn off without displaying " ".
- The actual battery charge may not be indicated accurately depending on the condition under which battery pack and camcorder are used.

① Zoom (📖 33), Exposure (📖 47)
② Manual focus (📖 48)
③ Image stabilizer (📖 65)
④ Recording mode (📖 66)

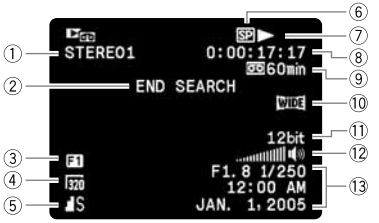
⑤ Recording Program (📖 40)
⑥ Light metering mode (📖 86)
⑦ White balance (📖 54)
⑧ Image effect (📖 56)
⑨ Drive mode (📖 88)
⑩ Digital effects (📖 57)
⑪ Movie size (📖 81)
⑫ Still image quality/size (📖 83)

⑬ Self-timer (📖 50)
⑭ Recording reminder (📖 29)

⑮ Tape operation (📖 16)
⑯ Time code (📖 29)
⑰ Remaining tape (📖 29)
⑱ Remaining battery charge

⑲ Wind screen (📖 73)
⑳ Microphone attenuator (📖 72)
㉑ Audio mode (📖 67)
㉒ Headphones (📖 38), Widescreen mode (📖 74)
㉓ Remaining card capacity for still images (📖 83)
㉔ Audio level indicator (📖 71)
㉕ Remaining card capacity for still images (📖 32)
㉖ Remaining card capacity for movies (📖 32)
㉗ Condensation (📖 129)
㉘ Remote sensor mode (📖 69)
㉙ Camcorder shake warning (📖 65)
㉚ Mini video light (📖 49)
㉛ Flash (📖 84)
㉜ AF/AE locked during still image recording (📖 30)
㉝ AF frame (📖 30)

When playing back a tape
(PLAY(VCR)•📼**)**

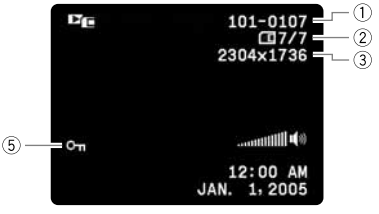


① 12 bit audio (📖 105)
② End search (📖 78), Date search (📖 80), Audio dubbing (📖 104)
③ Digital effects (📖 57)
④ Movie size (📖 106)
⑤ Still image quality/size (📖 106)
⑥ Recording mode (📖 66)
⑦ Tape operation
⑧ Time code (Tape counter) (📖 29)
⑨ Remaining tape (📖 29)
⑩ Widescreen mode (📖 74)
⑪ Audio mode (📖 67)
⑫ Volume level of built-in speaker or headphones (📖 38)
⑬ Data code (📖 77)

Tape operation

- ●: Record
- ● ❚❚: Pause
- ■: Stop
- ⏏: Eject
- ▶: Play
- ▶▶: Fast forward
- ◀◀: Rewind
- ▶▶/◀◀: Fast forward playback/rewind playback (📖 36)
- x2▶/◀x2: x2 playback (📖 36)
- x1▶/◀x1: x1 playback (📖 36)
- ❚▶/◀❚: Slow playback (📖 36)
- ||▶/◀||: Frame advance playback/frame reverse playback (📖 36)
- ▶||/||◀: Playback pause (📖 36)
- ▶▶|/|◀◀: Date search (📖 80)
- ▶▶/◀◀: Zero set memory (📖 79)
- ⏷/⏷||: Audio dubbing (📖 104)

When playing back a memory card
(PLAY(VCR)•🗂**)**





① File number (📖 69)
② Number of images
③ Still image size
④ Movie size/playback time
⑤ Protect mark (📖 94)

Step 1: Preparing the Power Supply

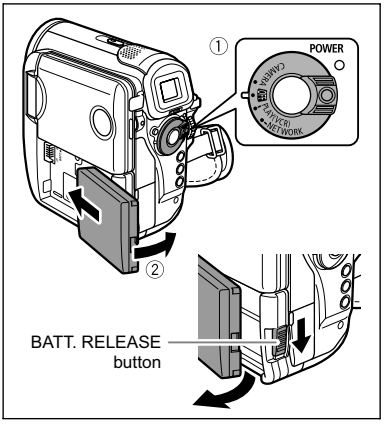
The camcorder can be powered by a battery pack or connected to a household power source. Charge the battery pack before use.

Attaching the Battery Pack

1. **Turn the POWER switch to OFF.**
2. **Attach the battery pack to the camcorder.**
 - Remove the terminal cover of the battery pack.
 - Slide in the connector end of the battery in the direction of the arrow and press it gently until it clicks.

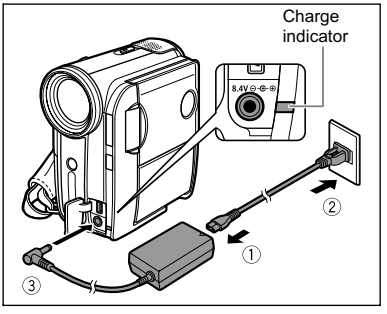
To remove the battery pack:

Hold the BATT. RELEASE button pressed down and pull out the battery from the ridge on its bottom part.



Charging the Battery Pack

1. **Connect the power cord to the adapter.**
2. **Plug the power cord into a power outlet.**
3. **Open the terminal cover and connect the power adapter to the camcorder's DC IN terminal.**
 The charge indicator starts flashing. It glows steadily when charging is complete.



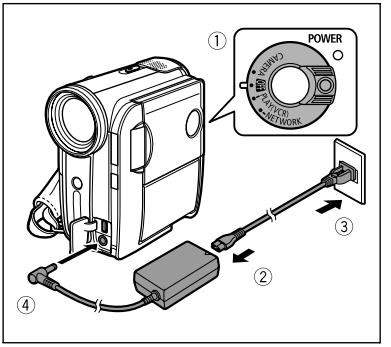
To remove the power adapter:

1. **Disconnect the power adapter from the camcorder.**
2. **Unplug the power cord from the power outlet.**
3. **Disconnect the power cord from the adapter.**

Using a Household Power Source

Connect to a household power source to use the camcorder without worrying about the battery power. You can keep the battery pack attached; the battery power will not be consumed.

1. **Turn the POWER switch to OFF.**
2. **Connect the power cord to the power adapter.**
3. **Plug the power cord into a power outlet.**
4. **Open the terminal cover and connect the power adapter to the camcorder's DC IN terminal.**



- ❍ Turn off the camcorder before connecting or disconnecting the power adapter.
- ❍ Do not connect any products that are not expressly recommended to the camcorder's DC IN terminal or to the power adapter.
- ❍ You may hear some noise from the power adapter during use. This is not a malfunction.
- ❍ Do not disconnect and reconnect the power cord while charging a battery pack. Charging may stop. The battery pack may not be charged correctly even if the charge indicator glows steady. The battery pack may also not be charged correctly when a power outage occurs during charging. Remove the battery pack and attach it back to the camcorder.

- ❍ When the power adapter or battery pack is defective, the charge indicator flashes rapidly (at about 2 flashes/second) and charging stops.
- ❍ The charge indicator informs you about the charge status.
 0-50%: Flashes once every second
 More than 50%: Flashes twice every second
 100%: Glows steadily

❍ **Charging, Recording and Playback Times**

Below times are approximate and vary according to the charging, recording or playback conditions.

Battery Pack		**BP-308**	**BP-315**
Charging Time		170 min.	255 min.
Max. Recording Time			
Viewfinder		115 min.	205 min.
LCD	normal	110 min.	195 min.
	bright	105 min.	185 min.
Typical Recording Time*			
Viewfinder		65 min.	115 min.
LCD	normal	60 min.	110 min.
	bright	60 min.	100 min.
Playback Time		130 min.	230 min.

* Approximate times for recording with repeated operations such as start/stop, zooming, power on/off.

❍ We recommend charging the battery pack in temperatures between 50 °F and 86 °F (10 °C and 30 °C). Outside the temperature range of 32 °F to 104 °F (0 °C to 40 °C), the charge indicator flashes rapidly and charging stops.

❍ A lithium ion battery pack can be charged at any charge state. Unlike conventional battery packs, you do not need to completely use or discharge it before charging.

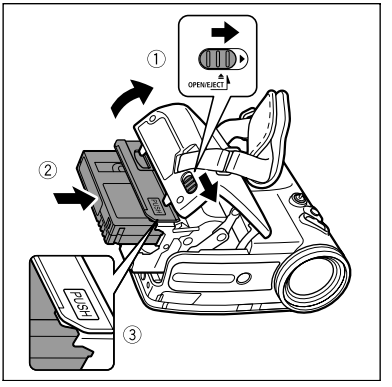
❍ To conserve battery power, turn off the camcorder instead of leaving it in record pause mode.

❍ We recommend that you prepare battery packs 2 to 3 times longer than you think you might need.

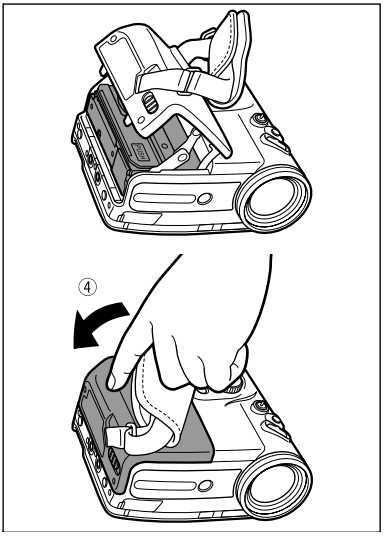
Step 2: Loading a Cassette

Use only videocassettes marked with the Mini DV logo.

1. **Slide the OPEN/EJECT switch and open the cassette compartment cover.**
 The cassette compartment opens automatically.
2. **Load the cassette.**
 Unload the cassette by pulling it straight out.
3. **Press the PUSH mark on the cassette compartment until it clicks.**



4. **Wait for the cassette compartment to retract automatically and close the cassette compartment cover.**



- ❍ Do not interfere with the cassette compartment while it is opening or closing automatically, or attempt to close the cover before the cassette compartment has fully retracted.
- ❍ Be careful not to get your fingers caught in the cassette compartment cover.

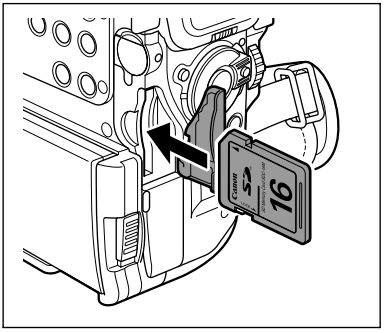
If the camcorder is connected to a power source, cassettes can be loaded/unloaded even if the POWER switch is set to OFF.

Step 3: Inserting a Memory Card

This camcorder is for use with SD Memory Cards only.

Inserting the Card

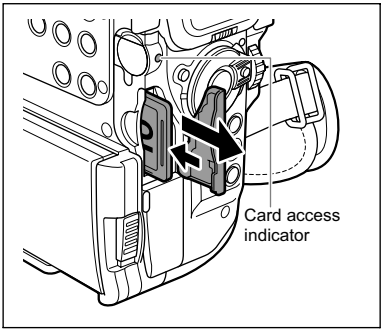
1. **Set the POWER switch to OFF.**
2. **Open the cover.**
3. **Insert the memory card straight all the way into the memory card slot.**
4. **Close the cover.**
 Do not close the cover forcefully without having the card correctly inserted.



Removing the Card

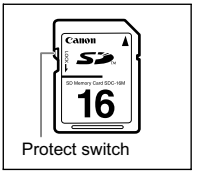
Do not forcefully remove the memory card without first pushing it in.

1. **Turn off the camcorder.**
 Make sure that the card access indicator is not flashing before you turn off the camcorder.
2. **Open the cover.**
3. **Push the memory card to release it. Remove the memory card.**
4. **Close the cover.**



If you use memory cards other than the supplied one, make sure to format them with the camcorder (96).

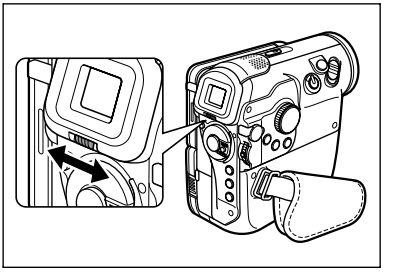
- ❍ The SD Memory Card has a protect switch to prevent accidental erasure. When the protect switch is set to LOCK, you cannot record images on the memory card or format it. If you wish to do either, change the position of the protect switch.
- ❍ Proper operation cannot be guaranteed for all memory cards.



Step 4: Preparing the Camcorder

Adjusting the Viewfinder (Dioptric Adjustment)

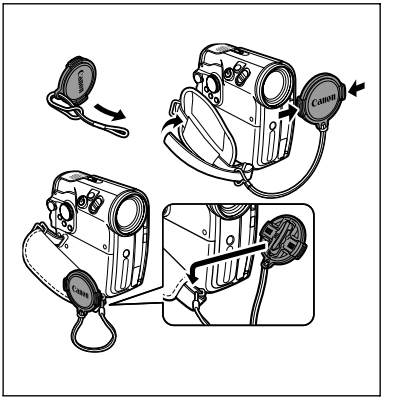
1. **Turn on the camcorder and keep the LCD panel closed.**
2. **Adjust the dioptric adjustment lever.**



Attaching the Lens Cap

1. **Attach the cord to the lens cap.**
2. **Pass the grip belt through the loop on the cord.**

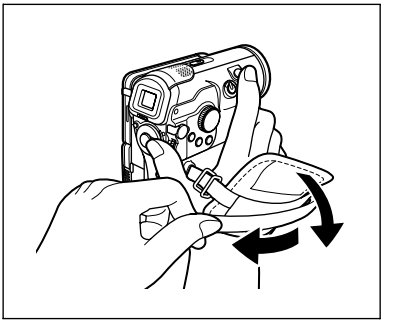
 Press the buttons on the lens cap when attaching/removing it. Hook the lens cap on the grip belt while you are recording, and place it over the lens when you have finished.



Fastening the Grip Belt

Hold the camcorder with your right hand and adjust the belt with your left.

Adjust the grip belt so that you can reach the zoom lever with your index finger, and the start/stop button with your thumb.

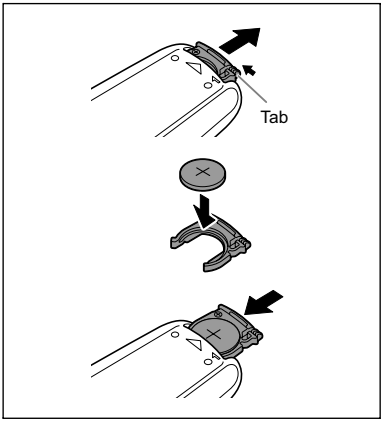


Step 5: Using the Wireless Controller

Inserting the Battery

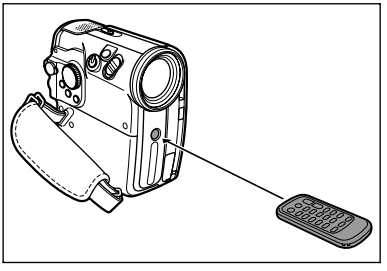
The wireless controller operates with a lithium button battery CR2025.

1. **Press the tab in the direction of the arrow and pull out the battery holder.**
2. **Place the lithium button battery with the + side facing up.**
3. **Insert the battery holder.**



Using the Wireless Controller

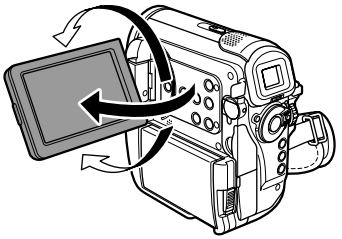
Point it at the camcorder's remote sensor when you press the buttons.

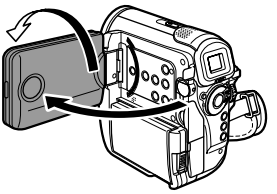


- ❍ The wireless controller may not work properly when the remote sensor is subjected to strong light sources or direct sunlight.
- ❍ If the wireless controller does not work, check if the remote sensor is set to [OFF (📡)] (📖 69).
- ❍ When the camcorder cannot be operated with the wireless controller, or when it can only be operated in very close range, replace the battery.

Step 6: Adjusting the LCD Screen

Rotating the LCD Panel





Subject can monitor the LCD screen

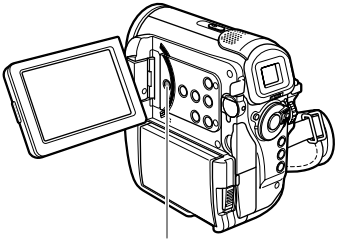
Open the LCD panel 90 degrees.

- You can rotate the panel downward by 90 degrees.
- You can rotate the panel by 180 degrees toward the lens (allowing the subject to monitor the LCD screen).

You can rotate the LCD panel to allow the subject to monitor the screen while you use the viewfinder. It is also useful if you wish to include yourself when recording with the self-timer.

LCD Backlight

You can switch the brightness of the LCD screen between normal and bright by pressing the LCD BACKLIGHT button. This is useful for outdoor recordings.



LCD BACKLIGHT button

Press the LCD BACKLIGHT button.

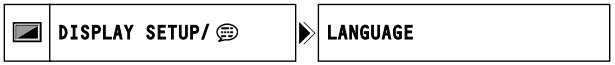
The brightness changes with each press of the button.

- ❍ This setting does not affect the brightness of the recording or the viewfinder screen.
- ❍ When using a battery pack, the camcorder retains the setting even if you change the position of the POWER switch.
- ❍ The battery usage time shortens when the LCD screen is set brighter.

Step 7: Changing the Display Language

The language used in the camcorder displays and menu items can be changed to German, Spanish, French, Italian, Russian, Simplified Chinese, Traditional Chinese, Korean or Japanese.

MENU (📖 64)



1. **Turn the POWER switch to CAMERA or PLAY (VCR).**
2. **Press the MENU button.**
3. **Turn the SET dial to select [DISPLAY SETUP/💬] and press the SET dial.**
4. **Turn the SET dial to select [LANGUAGE] and press the SET dial.**
5. **Turn the SET dial to select a language and press the SET dial.**
6. **Press the MENU button.**

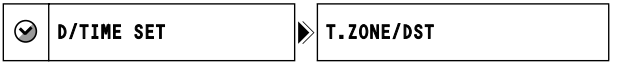


- If you have mistakenly changed the language, follow the 💬 mark next to the menu item to change the setting.
- The displays SET and MENU that appear on screen while changing the print and direct transfer settings will not change regardless of the language selected.

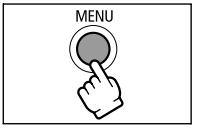
Step 8: Setting the Time Zone, Date and Time

Setting the Time Zone/Daylight Saving Time

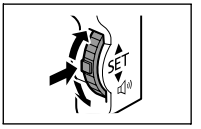
MENU (📖 64)



1. **Turn the POWER switch to CAMERA or PLAY (VCR).**
2. **Press the MENU button to open the menu.**



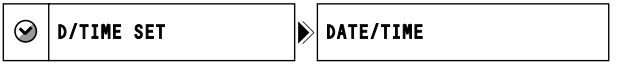
3. **Turn the SET dial to select [D/TIME SET] and press the SET dial.**
4. **Turn the SET dial to select [T.ZONE/DST] and press the SET dial.**
 The time zone setting appears. The default setting is New York.



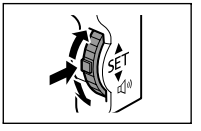
5. **Turn the SET dial to select the setting option that represents your time zone and press the SET dial.**
 To adjust for daylight saving time, select the time zone with the ☀ next to the area.

Setting the Date and Time

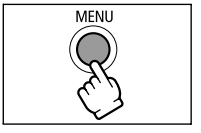
MENU (📖 64)



6. **Turn the SET dial to select [DATE/TIME] and press the SET dial.**
 The year display starts flashing.



7. **Turn the SET dial to select the year, and press the SET dial.**
 - The next part of the display starts flashing.
 - Set the month, day, hours and minutes in the same way.
8. **Press the MENU button to close the menu and to start the clock.**



When you do not use the camcorder for about 3 months, the built-in rechargeable lithium battery may become discharged, and the date/time setting may be canceled. In such case, recharge the built-in lithium battery (📖 135).

Time Zones

Once you have set your time zone, date and time, you do not need to reset the clock each time you travel to another time zone. Just set the time zone to the one of your destination, and the camcorder automatically adjusts the clock.

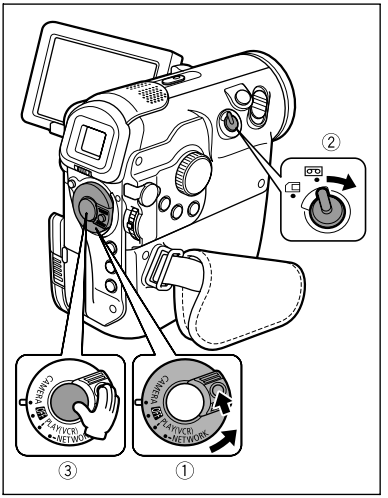
Time Zones and Difference from GMT/UTC

London	GMT/UTC	Wellington (WELLGTN)	+12
Paris	+1	Samoa	–11
Cairo	+2	Honolulu (HONOLU.)	–10
Moscow	+3	Anchorage (ANCHOR.)	–9
Dubai	+4	Los Angeles (L.A.)	–8
Karachi	+5	Denver	–7
Dacca	+6	Chicago	–6
Bangkok	+7	New York (N.Y.)	–5
Hong Kong (H. KONG)	+8	Caracas	–4
Tokyo	+9	Rio de Janeiro (RIO)	–3
Sydney	+10	Fernando de Noronha (FERNAN.)	–2
Solomon	+11	Azores	–1

Recording Movies on a Tape

Before You Begin Recording
Make a test recording first to check if the camcorder operates correctly. If necessary, clean the video heads (🕮 137).

1. **Press the small button and set the POWER switch to CAMERA.**
 The POWER indicator lights up.
2. **Set the TAPE/CARD switch to 📼.**
3. **Press the start/stop button to begin recording.**
 Press the start/stop button again to pause recording.

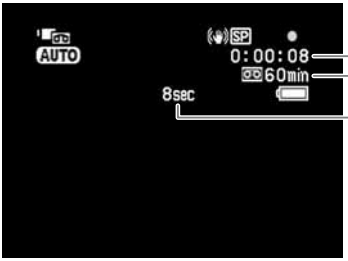


When you have finished recording:

1. **Turn the POWER switch to OFF.**
2. **Close the LCD panel.**
3. **Replace the lens cap.**
4. **Unload the cassette.**
5. **Disconnect the power source.**

- ❍ Wait until the time code stops completely before you start recording.
- ❍ If you record over previous recordings the overwritten part will be completely erased. Before you start recording be sure to search for the end point of the previous recordings.
- ❍ When recording near loud sounds (such as fireworks, drums or concerts), sound may become distorted or may be recorded not in the actual sound level. This is not a malfunction. The audio recording level can also be adjusted manually (🕮 71).
- ❍ **The camcorder enters stop mode after 4 minutes 30 seconds when left in record pause mode to protect tape and video heads.**
- ❍ **In stop mode, press the start/stop button to start recording and press the ⏲ (self-timer) button to go into record pause mode.**
 The tape operation display changes to ■ in the stop mode and ● ❚❚ in the record pause mode.
- ❍ **When powered by a battery pack, the camcorder shuts off after 5 minutes when the camcorder is left without any operation to save power (🕮 69). Approximately 30 seconds before the camcorder shuts off, "⚠AUTO POWER OFF" appears in the center of the screen. If the camcorder shuts off, turn the POWER switch to OFF and back on again.**
- ❍ **About the LCD and viewfinder screen: The screens are produced with extremely high-precision manufacturing techniques, with more than 99.99% of the pixels operating to specification. Less than 0.01% of the pixels may occasionally misfire or appear as black or green dots. This has no effect on the recorded image and does not constitute a malfunction.**

Screen Displays during Recording



① Time Code

Indicates the recording time in hours, minutes and seconds.

② Remaining tape

Indicates the remaining time of the tape in minutes. "▭" moves during recording. "▭ END" flashes when the tape reaches the end.

- When the time left is less than 15 seconds, the remaining tape time may not appear.
- Depending on the type of the tape, the indication may not be displayed correctly.

③ Recording reminder

The camcorder counts from 1 to 10 seconds when you start recording. This is helpful to avoid scenes that are too short.

Reviewing and Searching when Recording

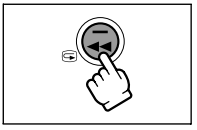
You can review the last few seconds of your recording (record review). You can also play back the tape to locate the point where you wish to begin recording (record search).

Record Review

In record pause mode:

Press and release the ⮌ (record review) button.

The camcorder rewinds the tape, plays back the last few seconds, and returns to record pause mode.

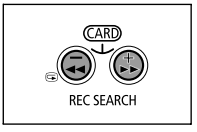


Record Search

In record pause mode:

Press and hold the REC SEARCH + button (forward) or – button (reverse).

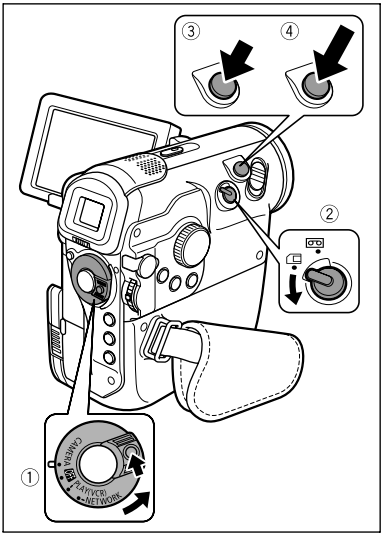
- Release the button at the point you wish to begin recording.
- The camcorder returns to record pause mode.



Recording on a Memory Card

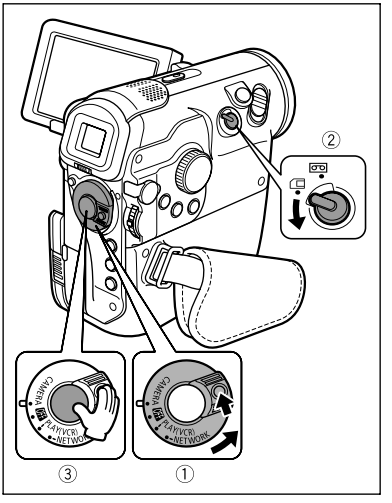
Recording Still Images on a Memory Card

1. **Press the small button and set the POWER switch to CAMERA.**
 The POWER indicator lights up.
2. **Set the TAPE/CARD switch to .**
3. **Select the still image size and quality (📖 82).**
4. **Press the PHOTO button halfway.**
 - ◉ turns green when focus is adjusted and a green frame appears. The beep sounds.
 - When you press the PHOTO button on the wireless controller, recording starts immediately.
5. **Press the PHOTO button fully.**
 - ◉ and focusing frame disappear and you hear a shutter sound.
 - The card access indicator flashes.



Recording Movies on a Memory Card

1. **Press the small button and set the POWER switch to CAMERA.**
 The POWER indicator lights up.
2. **Set the TAPE/CARD switch to .**
3. **Select the movie size (📖 82).**
 Set a movie size other than [MOVIE REC OFF].
4. **Press the start/stop button to begin recording.**
 - The card access indicator flashes.
 - Press the start/stop button to stop recording.



❍ When you are using a SD Memory Card, make sure that the protect switch is set to allow recording.
❍ Do not turn off the camcorder, change the position of the TAPE/CARD switch, disconnect the power source, open the memory card cover or remove the memory card while the card access indicator is flashing. Doing so could result in data damage.

❍ **About the focusing frame**:
This camcorder uses the 9-point artificial intelligence auto focus (9-point AiAF) that will automatically select the best focusing frames out of nine available. The way the focusing frames are selected varies depending on the recording mode and can also be changed manually(📖 87).
❍ If the subject is not suitable for autofocus, ⊙ turns yellow. Keep the PHOTO button pressed halfway and adjust the focus manually with the SET dial.
❍ When recording a still image (step 3), the image may appear out of focus for a moment while the camcorder is focusing.
❍ When the subject is too bright, “OVEREXP.” starts flashing. In such case, use the optional FS-34U ND filter.
❍ Sound for movies recorded on the memory card will be monaural.
❍ When you use a SD Memory Card, we recommend using a Canon SD Memory Card, or a SD Memory Card with a transfer rate of more than 2 MB/sec., right after you have formatted it with this camcorder. With memory cards not formatted with this camcorder, or when recording/erasing has been repeatedly performed, the writing speed may be lower and recording may stop.
❍ When powered by a battery pack, the camcorder shuts off after 5 minutes when the camcorder is left without any operation to save power (📖 69). Approximately 30 seconds before the camcorder shuts off, “⚠AUTO POWER OFF” appears in the center of the screen. If the camcorder shuts off, turn the POWER switch to OFF and back on again.

Screen Displays during Still Image Recording



① Still Image Quality/Size

Indicates the image quality and the image size of the still image.

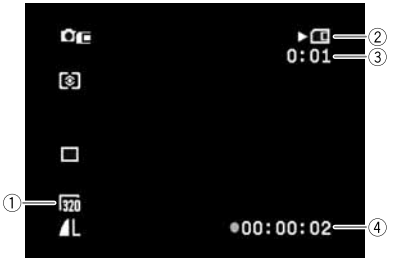
② Remaining Card Capacity for Still Images

- flashing in red: No card
- in green: 6 or more images
- in yellow: 1 to 5 images
- in red: No more images
- The indication may not decrease even though a recording has been made, or may decrease by 2 images at once.
- All indicators are displayed in green when a memory card is played back.

Card Access Display

"▶" appears to indicate that the camcorder is writing on the memory card.

Screen Displays during Movie Recording



① Movie size

Indicates the movie size.

② Card Access Display

"▶" appears to indicate that the camcorder is writing on the memory card. "" moves during recording.

③ Remaining Card Capacity for Movies

Indicates the remaining time in hours and minutes. At less than 1 minute, the remaining time will be displayed in 10 second-steps, at less than 10 seconds in 1 second-steps.

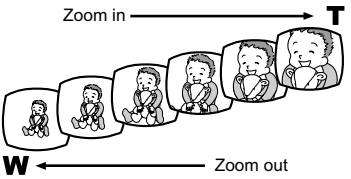
- The indication varies depending on the recording condition. The actual remaining time may be longer or shorter than indicated.

④ Movie recording time

Indicates the recording time of the movie.

Zooming

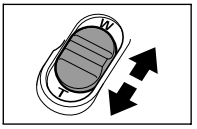
CAMERA• mode: In addition to the 10x optical zoom you can also use the 200x digital zoom (📖 65).



10x Optical Zoom

Move the zoom lever toward W to zoom out (wide-angle). Move it toward T to zoom in (telephoto).

Press the zoom lever slightly for a slow zoom. Press harder for a faster zoom.



- ❍ You can also use the **T** and **W** buttons on the wireless controller. However, you cannot control the zoom speed.
- ❍ The zoom speed will be faster in the stop and record pause modes.
- ❍ Overusing the zoom feature when recording movies can result in recordings that may have an unsettled feel or cause discomfort on playback. Make effective use of the zoom.
- ❍ Keep at least 3.3 ft. (1 m) to the subject. At wide-angle, you can focus on a subject as close as 0.39 in. (1 cm).

Tips for Better Recording

Holding the Camcorder

For maximum stability, grip the camcorder in your right hand and keep your right elbow pressed against your body. If necessary, support the camcorder with your left hand. Be careful that your fingers do not touch the microphone or lens.



For More Stability

❍ Lean against a wall



❍ Put the camcorder on a table



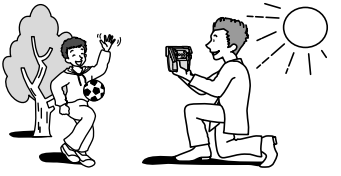
❍ Lie on your elbow
❍ Kneel on one knee

❍ Use a tripod

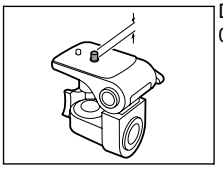


Lighting

When recording outdoors, we recommend recording with the sun at your back.



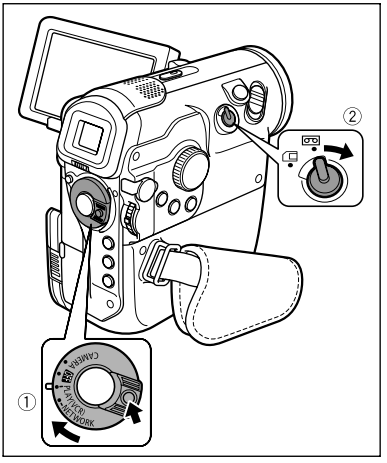
❍ When using a tripod, do not leave the viewfinder exposed to direct sunlight as it may melt (due to concentration of the light by the lens).

❍ 
Do not use tripods with fastening screws longer than 0.2 inch (5.5 mm) as it may damage the camcorder.

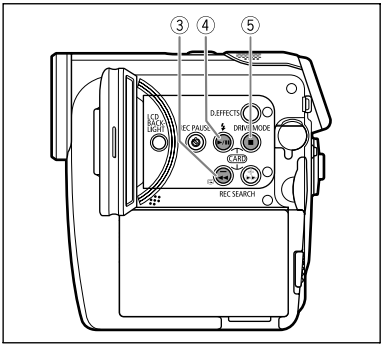
Playing Back a Tape

If the playback picture is distorted, clean the video heads using a Canon Head Cleaning Cassette or a commercially available digital video head-cleaning cassette (🕮 137).

1. **Press the small button and set the POWER switch to PLAY (VCR).**
2. **Set the TAPE/CARD switch to .**

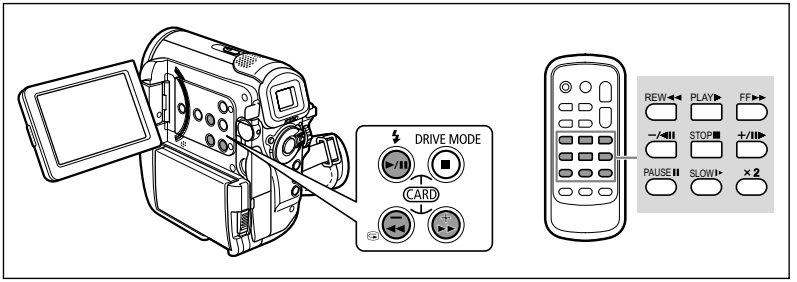


3. **Press the ◀◀ button to rewind the tape.**
4. **Press the ▶/❚❚ button to begin playback.**
5. **Press the ■ button to stop playback.**



❍ To use the viewfinder, close the LCD panel.
❍ About the screen display: During playback, the time code gives the hours, minutes, seconds and frames. The remaining tape time may not appear when the time left is less than 15 seconds.
❍ To display the audio level at the time of recording, press the AUDIO LEVEL button during playback.

Special Playback Modes



►/II (Playback Pause)
To pause playback, press the ►/II button during normal playback.

►► (Fast Forward Playback) / ◄◄ (Rewind Playback)
Plays back the tape at 9.5 times normal speed (forward or reverse). Press and hold the button during normal playback or fast forward.

–/◄II (Reverse Playback)
Press the button on the wireless controller during normal playback. Press the ► (play) button to return to normal playback.

+/II► (Frame Advance) / –/◄II (Frame Reverse)
Plays back frame-by-frame. Press the button on the wireless controller repeatedly during playback pause. Press and hold it to play back continuous frame advance/frame reverse.

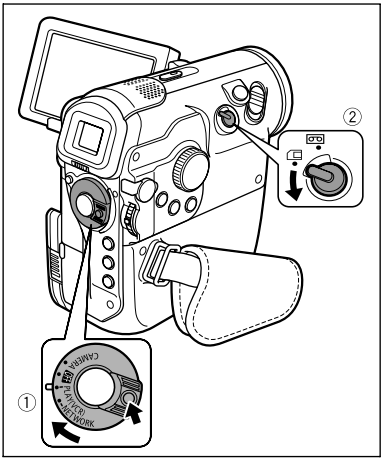
SLOW I► (Slow Forward)/(Slow Reverse)
Plays back at about 1/3 normal speed. Press the button on the wireless controller during normal or reverse playback. Press the ► (play) button to return to normal playback.

x2 (Forward x2 Playback)/(Reverse x2 Playback)
Plays back at 2 times normal speed. Press the button on the wireless controller during normal or reverse playback. Press the ► (play) button to return to normal playback.

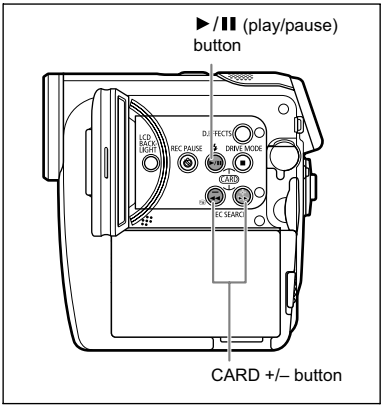
- There is no sound during special playback.
- The picture may become distorted during some special playback modes.
- The camcorder stops the tape automatically after 4 minutes 30 seconds in playback pause mode to protect tape and video heads.

Playing Back a Memory Card

1. **Press the small button and set the POWER switch to PLAY (VCR).**
2. **Set the TAPE/CARD switch to .**



3. **Press the CARD +/– button to move between images.**
 Press the ▶/❚❚ button to play back a movie.
 - The first scene appears as a still image when playback is complete.
 - Pressing the ■ button displays the first scene of the movie.



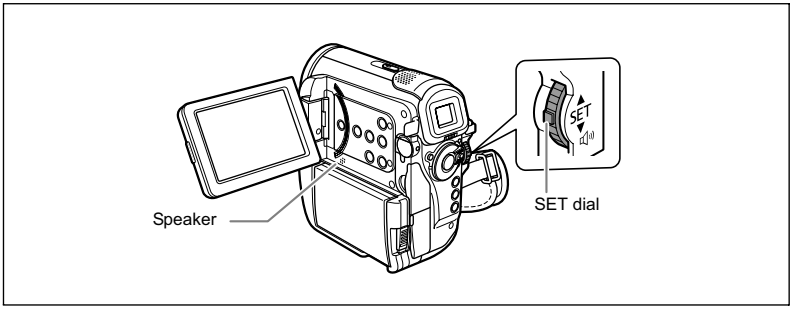
❍ Images not recorded with this camcorder, uploaded from a computer (except the sample images for the Card Mix function), edited on a computer and images whose file names have been changed may not be played back correctly.

❍ Do not turn off the camcorder, change the position of the TAPE/CARD switch, disconnect the power source, open the memory card cover or remove the memory card while the card access indicator is flashing. Doing so could result in data damage.

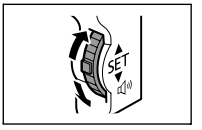
During movie playback: Hold the CARD +/– button on the camcorder (or REW ◀◀/ FF ▶▶ on the wireless controller) pressed down for 8x fast forward/fast rewind playback.

Adjusting the Volume

When you use the LCD screen for playback, the camcorder plays back the sound via built-in speaker. The speaker does not sound when you close the LCD panel. Use headphones when using the viewfinder.



1. **Set the camcorder to** PLAY(VCR)• **or** PLAY(VCR)• **mode.**
2. **Turn the SET dial up to increase the volume, and down to lower the volume during playback.**
 - A volume bar appears for 2 seconds.
 - You can turn off the volume completely by turning the SET dial down until "OFF" appears. Turn the SET dial up to increase the volume again.

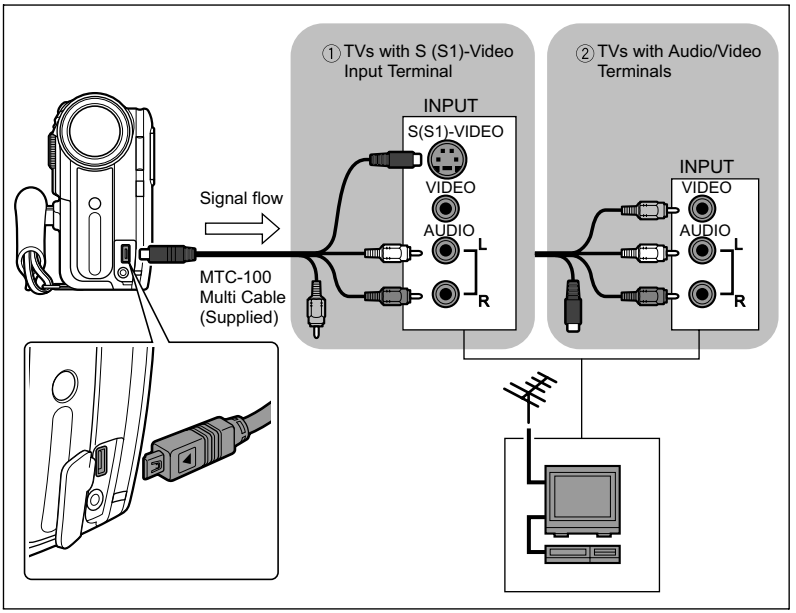


The speaker does not sound when headphones are connected to the camcorder.

You can also use headphones to check the sound while recording. Use the MENU button to adjust the volume (📖 67).

Playing Back on a TV Screen

Refer also to the TV or VCR instruction manual.



1. **Turn off all devices before starting the connections.**
2. **Open the terminal cover and connect the camcorder to the TV/VCR using the MTC-100 Multi Cable.**
 - When connecting to a TV with an S (S1)-video input terminal: Connect the black plug to the S-video terminal, the white plug to the white audio terminal L (left) and the red plug to the red audio terminal R (right). Do not connect the yellow plug.
 - When connecting to a TV with Audio/Video terminals: Connect the white plug to the white audio terminal L (left), the red plug to the red audio terminal R (right) and the yellow plug to the yellow video terminal VIDEO.
3. **If connecting to a TV, set the input selector to VIDEO. If connecting to a VCR, set the input selector to LINE.**
4. **Play back a tape (📖 35) or a memory card (📖 37).**

❍ We recommend powering the camcorder from a household power source.
❍ The picture quality is higher when connecting to a TV with an S (S1) terminal.

Using the Recording Programs

AUTO Auto
The camcorder adjusts focus, exposure and other settings automatically, allowing you to just point and shoot.



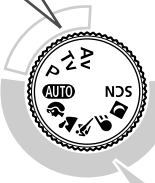
Portrait
The camcorder uses a large aperture, achieving a focus on the subject while blurring other distracting details.



Landscape
The camcorder chooses a small aperture to achieve a broad depth of field in the entire composition.



Creative Recording:
You can adjust the settings to match the conditions for the subjects.



Easy Recording:
The camcorder automatically selects matching conditions for the subjects.

P Program AE
The camcorder adjusts the camera settings automatically. However, you have the options of adjusting the settings manually (📖 44).

Tv Shutter-Priority AE
Use this mode to select the shutter speed. The camcorder automatically sets a matching aperture setting (📖 45).

Av Aperture-Priority AE
Use this mode to select the aperture size. The camcorder chooses the appropriate shutter speed (📖 46).

Sports
Use this mode to record sports scenes such as tennis or golf.



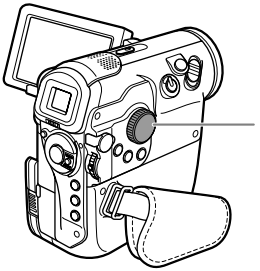
Slow Shutter
Use this mode to record moving subjects to make them appear blurred, such as the flow of rivers.



SCN Special Scene
Select from 6 Special Scene modes to record with the most appropriate settings for each scene (📖 43).

Night
Use this mode to record in dimly lit places (📖 42).

Selecting the Recording Program



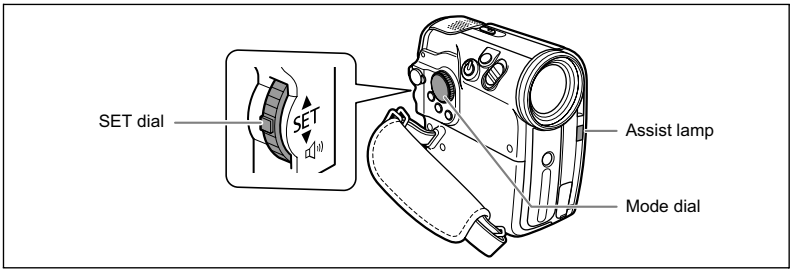
1. **Set the camcorder to** CAMERA• **or** CAMERA• **mode.**
2. **Turn the mode dial to switch between the recording programs.**
 The symbol of the selected recording program appears.



- ❍ Do not change the mode during recording as the brightness of the image may change abruptly.
- ❍ Portrait mode:
 The blur effect of the background increases the more you zoom to telephoto.
 The picture may not appear smooth when played back.
- ❍ Landscape mode:
 Zooming out (W) can result in more effective shooting.
- ❍ Sports mode:
 The picture may not appear smooth when played back.
- ❍ Slow Shutter mode:
 - When recording movies on a tape, picture quality may not be as good as in other modes.
 - The camcorder may have difficulty to focus automatically.

Using the Super Night Mode

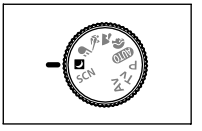
Allows you to record in dimly lit places without sacrificing color. The assist lamp lights up automatically responding to the surrounding brightness.





Super Night Mode

1. **Set the camcorder to** CAMERA• **or** CAMERA• **mode.**
2. **Set the mode dial to .**
3. **Press the SET dial.**
4. **Turn the SET dial to select [SUPER NIGHT] and press the SET dial.**
 - " " appears.
 - The symbol of the selected mode appears on the screen.



- ❍ Moving subjects may leave a trailing afterimage.
- ❍ Picture quality may not be as good as in other modes.
- ❍ White points may appear on the screen.
- ❍ Autofocus may not work as well as in other modes. In such case, adjust the focus manually.

SCN *Using the Special Scene Modes*

FOLIAGE

Use this mode to record images with flowers, leaves or trees.



SNOW

Use this mode to record in bright ski resorts. It prevents the subject from being underexposed.



BEACH

Use this mode to record on a sunny beach. It prevents the subject from being underexposed.



SUNSET

Use this mode to record sunsets for vibrant colors.



SPOTLIGHT

Use this mode to record spotlit scenes.

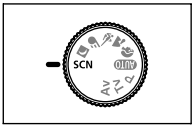


FIREWORKS

Use this mode to record fireworks.



1. **Set the camcorder to** CAMERA• **or** CAMERA• **mode.**
2. **Set the mode dial to SCN.**
3. **Press the SET dial.**
 A list of Special Scene modes appears.
4. **Turn the SET dial to select a Special Scene mode and press the SET dial.**
 The symbol of the selected mode appears.



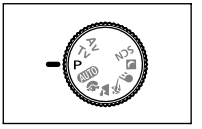
❍ Snow/Beach mode:
- The subject may become overexposed on cloudy days or in shaded places. Check the image on the screen.
- The picture may not appear smooth when played back.

❍ Fireworks mode:
To avoid camcorder shake, we recommend using a tripod.
CAMERA• mode: Use a tripod as the shutter speed slows down.

P *Using the Program AE Mode*

The camcorder automatically adjusts shutter speed and exposure according to the brightness of the subject. In Program AE mode, you can point and shoot as in Auto mode, however, you have the option of changing some settings.

1. **Set the camcorder to** CAMERA• **or** CAMERA• **mode.**
2. **Set the mode dial to P.**



If the optimal exposure cannot be obtained, try the following actions.
- Manually adjust the exposure (📖 47).
- Use the flash (📖 84).
- Change the light metering mode (📖 86).

Tv *Using the Shutter-Priority AE Mode*

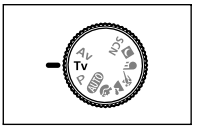
You can select a shutter speed, and the camcorder automatically sets a matching aperture setting.

Select a high shutter speed for recording fast moving subjects, and a slow shutter speed to create a trailing after image.

Guidelines for selecting the shutter speed

CAMERA•	CAMERA•	
1/8, 1/15, 1/30	1/2, 1/4, 1/8, 1/15, 1/30	For recording subjects in dark places.
1/60	1/60	For general recordings.
1/100	1/100	For recording indoor sports scenes.
1/250, 1/500, 1/1000	1/250, 1/500	For recording from within a car or trains, or recording moving subjects such as roller coasters.
1/2000	-	For recording outdoor sports such as golf or tennis on sunny days.

1. **Set the camcorder to** CAMERA• **or** CAMERA• **mode.**
2. **Set the mode dial to Tv.**
3. **Press the SET dial.**
4. **Turn the SET dial to select the shutter speed.**
 The denominator of the shutter speed appears.



- ❍ The shutter speed number flashes when the selected shutter speed is not appropriate for the recording condition. In such case, readjust the shutter speed.
- ❍ When using a slow shutter speed in dark places, you can record the subject brightly, but the image quality may be lower, and autofocus may not work well.
- ❍ Do not point the camcorder directly at the sun when the shutter speed is set to 1/1000 or higher.
- ❍ The image may flicker when recording with high shutter speeds.
- ❍ Recording movies on a tape under fluorescent lights: When the mode dial is set to AUTO, **P** or , the camcorder automatically detects the flicker of fluorescent lighting and adjusts the shutter speed accordingly. However, if the screen starts to flicker, select Tv mode and set the shutter speed to 1/100.

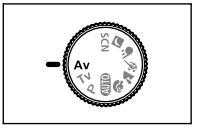
Av *Using the Aperture-Priority AE Mode*

You can select an aperture value, and the camcorder automatically chooses the appropriate shutter speed.

Aperture values: 1.8, 2.0, 2.4, 2.8, 3.4, 4.0, 4.8, 5.6, 6.7, 8.0

Use low aperture values (large aperture) to blur the background for a portrait, or high aperture values (small aperture) to achieve a broad depth of field for recording landscapes.

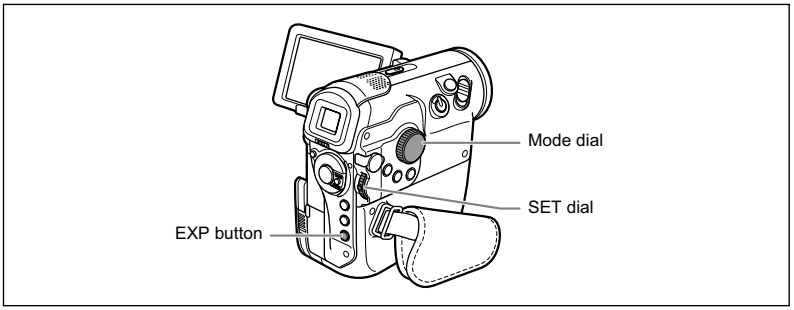
1. **Set the camcorder to** CAMERA• **or** CAMERA• **mode.**
2. **Set the mode dial to Av.**
3. **Press the SET dial.**
4. **Turn the SET dial to select an aperture value.**
 - The shutter speed is adjusted automatically.
 - The aperture becomes smaller the bigger the aperture value.



❍ Available aperture values vary depending on the zoom position.
❍ The aperture number flashes when the selected aperture is not appropriate for the recording condition. In such case, readjust the aperture.

Adjusting Exposure Manually

Adjust the exposure when a backlit subject becomes underexposed, or overexposed due to bright light.



Exposure Lock

1. **Set the camcorder to** CAMERA• **or** CAMERA• **mode.**
2. **Set the mode dial to a mode other than AUTO.**
 Exposure cannot be adjusted in the Fireworks mode (SCN).
3. **Press the EXP button.**
 - "±0" appears on the screen.
 - When you operate the zoom during exposure lock, the brightness of the image may change.

Exposure Adjustment

During exposure lock:

Turn the SET dial to adjust the brightness of the image.

The adjustment range depends on the brightness at the time you locked the exposure.

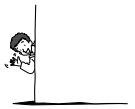
Adjusting the Focus Manually

Autofocus may not work well on the following subjects. In such case, focus manually.

Reflective surfaces



Subjects with low contrast or without vertical lines



Fast Moving Subjects

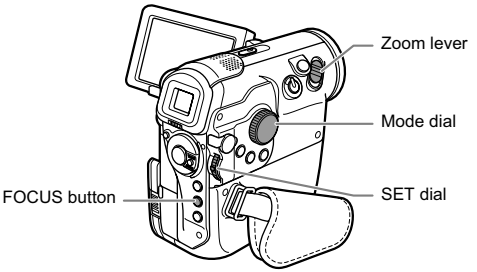


Through dirty or wet windows



Night Scenes





1. **Set the camcorder to** CAMERA• **or** CAMERA• **mode.**
2. **Set the mode dial to a mode other than** AUTO**.**
3. **Adjust the zoom.**
4. **Press the FOCUS button.**
 "MF" appears.
5. **Turn the SET dial to adjust the focus.**
 - Turn the SET dial up or down until the image appears focused.
 - Press the FOCUS button to return to autofocus.

❍ The setting resets to autofocus when you switch the mode dial to AUTO.
❍ Readjust the focus when you have turned off the camcorder.

Infinity Focus

Use this function when you wish to focus on faraway subjects such as mountains or fireworks.

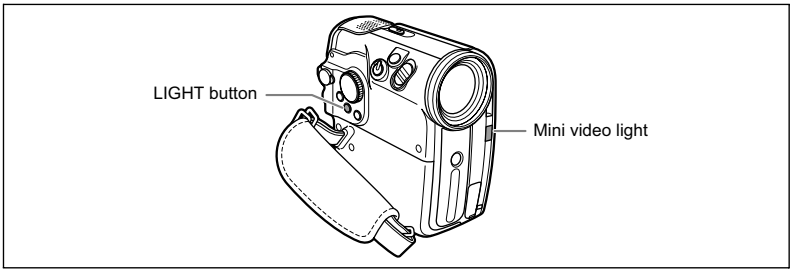
Press the FOCUS button more than 2 seconds after step 3 in *Adjusting the Focus Manually*.

"∞" appears.

When you operate the zoom or turn the SET dial, "∞" changes to "MF" and the camcorder changes to manual focusing mode.

Using the Mini Video Light

You can turn on the mini video light (assist lamp) at any time regardless of the recording program.



1. Set the camcorder to CAMERA• **or** CAMERA• **mode.**

2. Press the LIGHT button.

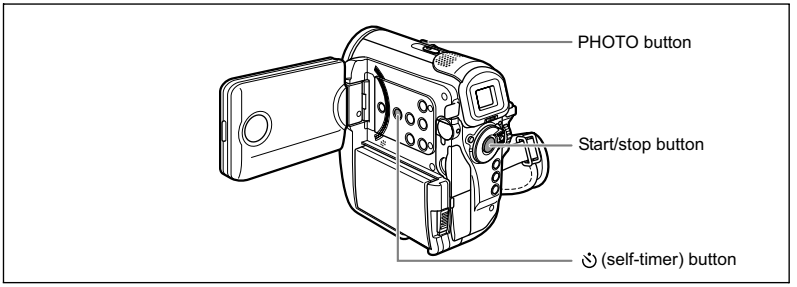
- "☼" appears on the screen.
- The mini video light turns on and off with each press of the button.

❍ Do not point the mini video light at persons while they are driving.
❍ Do not look at the mini video light for a long time.
❍ Do not use the mini video light close to people's eyes.

In Super Night mode when the mini video light turns on automatically, pressing the LIGHT button will not turn it off.

Using the Self-Timer

The self-timer can be used for recording movies and still images.



1. **Set the camcorder to** CAMERA• **or** CAMERA• **mode.**
2. **Press the (self-timer) button.**
 - " " appears.
 - In the CAMERA• position set the camcorder to record pause mode.

When recording a still image:

3. **Press the PHOTO button halfway.**
4. **Press the PHOTO button fully.**
 The camcorder starts recording after a 10-second countdown (2 seconds when using the wireless controller). The countdown appears on the screen.

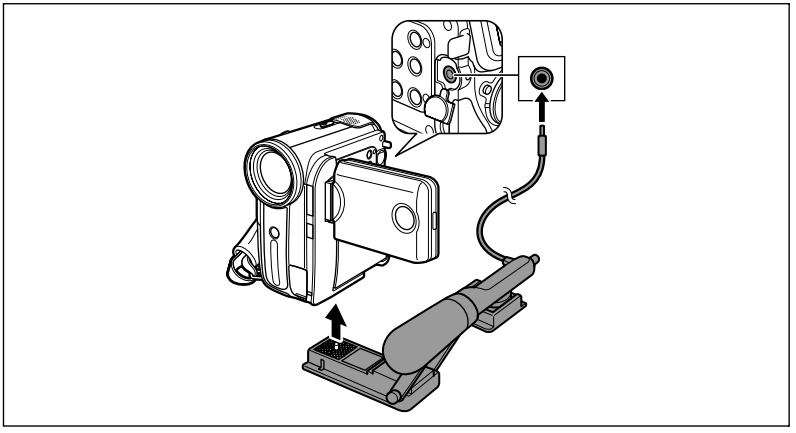
When recording a movie:

3. **Press the start/stop button.**
 The camcorder starts recording after a 10-second countdown (2 seconds when using the wireless controller). The countdown appears on the screen.

❍ To cancel the self-timer, press the (self-timer) button. Once the countdown has begun, you can also press the start/stop button (when recording movies) or the PHOTO button (when recording still image) to cancel the self-timer.
❍ The self-timer will be canceled when you turn off the camcorder.

Recording with an External Microphone

You can use the optional SA-1 Adapter Bracket to attach a microphone to the camcorder. Refer also to the instruction manual of the microphone.



1. Attach the microphone to the adapter bracket.

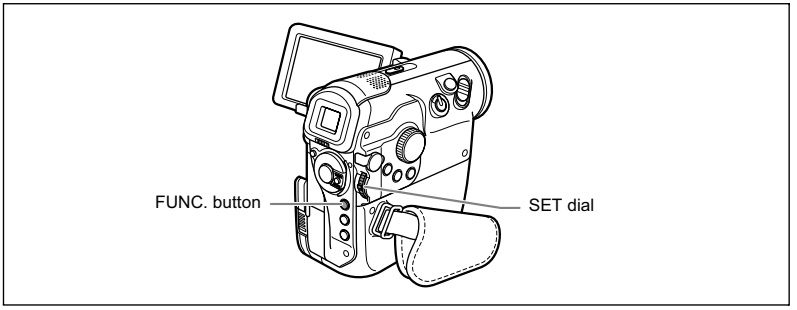
2. Attach the adapter bracket to the camcorder.

3. Connect the microphone to the camcorder.

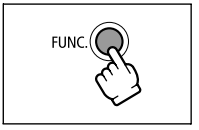
- ❍ When recording in silent places, the built-in microphone may pick up the motor noise of the camcorder. In such case, we recommend using an external microphone.
- ❍ When using a commercially available microphone:
 - Use a microphone with built-in power supply (condenser microphone). Almost all stereo microphones with a plug diameter of 0.14 in. (3.5 mm) can be connected. The audio level may differ from that of the built-in microphone.
 - Long microphones may appear on the screen.

Changing the Settings with the FUNC. Button

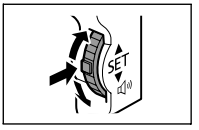
Many of the camcorder's functions are selected from the FUNC. menu that appears when pressing the FUNC. button. For menu items, see *List of Menu Items (FUNC.)* (🕮 53).



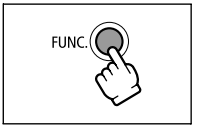
1. **Press the FUNC. button.**
 - The menu appears.
 - The symbols of the current settings are displayed.



2. **Turn the SET dial to select a function and press the SET dial.**
3. **Turn the SET dial to select a setting option and press the SET dial.**
 - The symbol changes to the one of the selected setting.
 - For setting the white balance [SET], image effect [CUSTOM] or digital effect [MULTI-IMAGE SCREEN] function, refer to the relevant pages.



4. **Press the FUNC. button.**
 The menu disappears.



❍ Functions that are not available appear in gray.
❍ Pressing the FUNC. button at any time closes the menu.

List of Menu Items (FUNC.)

Available menu items vary depending on the operation mode. Default settings are in boldface text.

For details on each function, see the reference page.

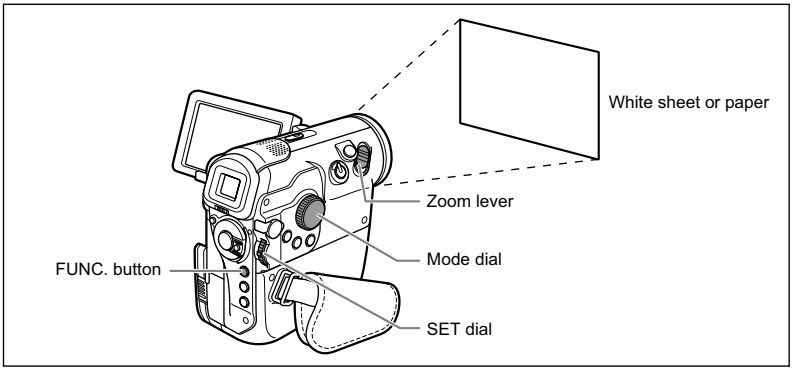
Menu Items	Setting Options						
Light metering mode	**EVALUATIVE**, CENT.WEIGHT.AVERAGE, SPOT			○		86	
White balance	**AUTO**, DAYLIGHT, SHADE, CLOUDY, TUNGSTEN, FLUORESCENT, FLUORESCENT H, SET	○		○		54	
Image effect	**IMAGE EFFECT OFF**, VIVID, NEUTRAL, LOW SHARPENING, SOFT SKIN DETAIL, CUSTOM	○		○		56	
Drive mode	**SINGLE**, CONT.SHOOT., HISPEED CONT.SHOOT., AEB, STITCH AST			○		88 90	
Digital Effects	**D.EFFECT OFF**, FADER, EFFECT, MULTI-IMAGE SCREEN, CARD MIX	○				57	
	D.EFFECT OFF, FADER, EFFECT, MULTI-IMAGE SCREEN		○				
	D.EFFECT OFF, BLK&WHT			○			
Still image recording	**STILL I. REC OFF**, FINE/640x480, NORMAL/640x480	○				83	
Movie size	**320x240**, 160x120		○			81	
	MOVIE REC OFF, 320x240, 160x120			○			
Still image quality	S.FINE/640x480, **FINE/640x480**, NORMAL/640x480		○			106	
Still image size/ quality	**L 2304x1736**, M1 1632x1224, M2 1280x960, S 640x480			○		81	
	SUPER FINE, **FINE**, NORMAL						
Image erase	–			○*	○	95	
Slide show	–				○	92	
Protect	–			○*	○	94	
Print order	–				○	117	
Transfer order	–				○	124	

* This setting option appears when pressing the FUNC. button right after recording a still image on a memory card.

Setting the White Balance

You can use the preset modes to reproduce colors more accurately, or set a custom white balance to obtain the optimal setting.

AWB AUTO	Settings are automatically set by the camcorder.
☀ DAYLIGHT	For recording outdoors on a bright day.
SHADE	For recording in shaded places.
CLOUDY	For recording on a cloudy day.
TUNGSTEN	For recording under tungsten and tungsten type (3-wavelength) fluorescent lighting.
FLUORESECENT	For recording under warm white, cool white or warm white type (3-wavelength) fluorescent lighting.
FLUORESCENT H	For recording under daylight or daylight type (3-wavelength) fluorescent lighting.
SET	Use the custom white balance setting to make white subjects appear white under colored lighting.



FUNC.
(52)

AWB	AUTO

1. **Set the camcorder to** CAMERA• **or** CAMERA• **mode.**
2. **Set the mode dial to mode other than AUTO or SCN.**
3. **Press the FUNC. button.**
4. **Select the white balance symbol followed by the setting option.**
5. **When you have selected [SET]: Point the camcorder at a white object, zoom in until it fills the whole screen and press the SET dial.**
 - Keep the camcorder zoomed at the white object until step 5 is completed.
 - flashes and stops flashing when adjustment is complete.
6. **Press the FUNC. button.**

❍ Use the auto setting for normal outdoor scenes.
❍ Depending on the type of fluorescent light, optimal color balance cannot be accomplished with [FLUORESCENT] or [FLUORESCENT H]. If the color looks unnatural on the screen, adjust using [AUTO] or [SET].
❍ The camcorder retains the custom white balance setting even if you turn it off.
❍ When you want to use a previously made [SET] setting, after selecting [SET] in step 4, press the FUNC. button without pressing the SET dial.
❍ When you have set the custom white balance:
- Depending on the light source, "" may keep flashing. The result will still be better than with the auto setting.
- Reset the white balance when the lighting condition changes.
- Turn off the digital zoom.

❍ Custom white balance may provide better results in the following cases:
- Changing lighting conditions
- Close-ups
- Subjects in a single color (sky, sea or forest)
- Under mercury lamps or certain types of fluorescent lights

Selecting an Image Effect

You can record with different saturation and contrast color effects.

IMAGE EFFECT OFF	Records with no effect.
VIVID	Emphasizes the contrast and color saturation to record in crisp colors.
NEUTRAL	Tones down the contrast and color saturation to record in neutral hues.
LOW SHARPENING	Records subjects with softened outlines.
SOFT SKIN DETAIL	Softens the details in the skin tone area for a more complimentary appearance.
CUSTOM	Allows you to adjust the brightness, contrast, color depth and sharpness of the image.

FUNC.
(52)



1. **Set the camcorder to** CAMERA• **or** CAMERA• **mode.**
2. **Set the mode dial to a mode other than** AUTO **or** SCN**.**
3. **Press the FUNC. button.**
4. **Select the image effect symbol followed by the setting option.**
5. **When you have selected [CUSTOM]:**
 Select the custom setting option (brightness, contrast, sharpness or color depth), adjust the settings with the SET dial and select [SET].
6. **Press the FUNC. button.**

[SOFT SKIN DETAIL]: To obtain the best effect, use this function when recording a person in close-up. Note that areas similar to the skin color may lack in detail.

Using Digital Effects

The Digital Effects functions include a fader and effects, multi-image screen and Card Mix.

E

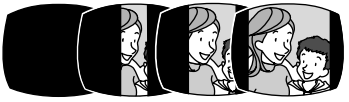
Faders (📖 59)

Begin or end scenes with a fade to or from black.

F1 Fade Trigger (FADE-T)



F2 Wipe (WIPE)



F3 Corner Wipe (CORNER)



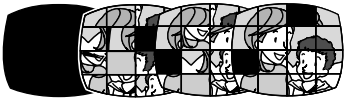
F4 Jump (JUMP)



F5 Flip (FLIP)



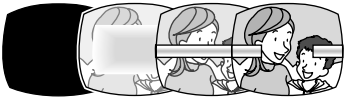
F6 Puzzle (PUZZLE)



F7 Zigzag (ZIGZAG)



F8 Beam (BEAM)

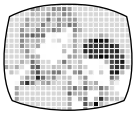


F9 Tide (TIDE)



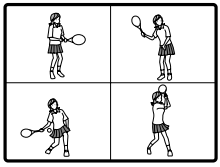
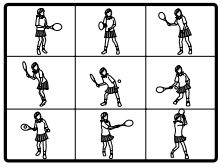
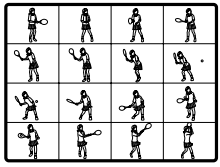
Effects (📖 60)

Add flavor to your recordings.

E1 Black and White (BLK & WHT) 	E2 Sepia (SEPIA) 	E3 Art (ART) 
E4 Mosaic (MOSAIC) 	E5 Ball (BALL) 	E6 Cube (CUBE) 
E7 Wave (WAVE) 	E8 Color Mask (COLOR M.) 	E9 Mirror (MIRROR) 

Multi-Image Screen (📖 61)

Captures moving subjects in 4, 9 or 16 sequences of still images and displays them at one time. Sound will be recorded normally.

4 Sequences	9 Sequences	16 Sequences
		

Card Mix (📖 62)

Combines a still image recorded on a memory card with your recording.

Availability of Digital Effects by Operating Modes:

	CAMERA•		PLAY(VCR)•	CAMERA•	PLAY(VCR)•
	Movies	Still Images			
Faders	○	×	○	×	×
Effects	○	×	○	○*	×
Multi-image screen	○	×	○	×	×
Card mix	○	×	×	×	×

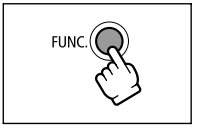
○: Available ×: Not available *: Black and White only.

Selecting a Fader

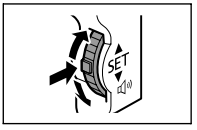
FUNC.
(📖 52)

OFF	D.EFFECT OFF

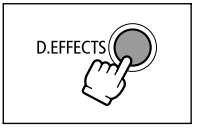
1. **Set the camcorder to** CAMERA• **or** PLAY(VCR)• **mode.**
 CAMERA• **mode: Set the mode dial to a mode other than** AUTO**.**
2. **Press the FUNC. button.**



3. **Select the digital effect symbol followed by [FADER].**
4. **Select the fader type.**
 - The selected fader shows as an animation.
 - The selected fader animates the image that appears on the screen.

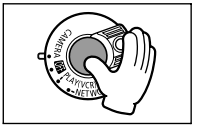


5. **Press the FUNC. button.**
 The symbol of the selected fader appears.
6. **Press the D.EFFECTS button.**
 - The symbol changes to green.
 - Pressing the D.EFFECTS button again deactivates the fader.



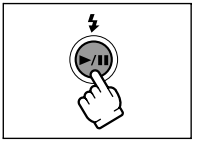
CAMERA• mode:

7. **Fade in: Press the start/stop button in record pause mode.**
 Fade out: Press the start/stop button in record mode.



PLAY(VCR)• mode:

7. Fade in: Press the ▶/❚❚ button in playback pause mode.
Fade out: Press the ▶/❚❚ button in playback mode.



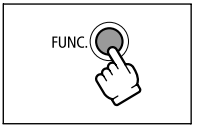
Selecting an Effect

(FUNC.)
(📖 52)

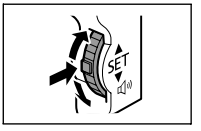


1. Set the camcorder to CAMERA• **,** PLAY(VCR)• **or** CAMERA• **mode.**
CAMERA• **and** CAMERA• **mode: Set the mode dial to a mode other than** AUTO**.**

2. Press the FUNC. button.



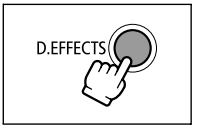
3. Select the digital effect symbol followed by [EFFECT].
CAMERA• mode: Select the digital effects symbol followed by [BLK&WHT] then move to step 5.



4. Select the effect type.
- The selected effect shows as an animation.
- The selected effect animates the image that appears on the screen.

5. Press the FUNC. button.
The symbol of the selected effect appears.

6. Press the D.EFFECTS button.
- The symbol turns green, and the effect is activated.
- PLAY(VCR)• mode: Playback the tape first and press the D.EFFECTS button.
- Pressing the D.EFFECTS button again deactivates the effect.



Using the Multi-Image Screen

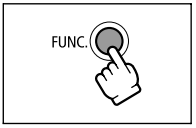
You can operate the multi-image screen only in the following playback modes:

- When [S.SPEED] is set to [MANUAL]: Playback pause, slow forward/reverse playback
- When [S.SPEED] is set to [FAST], [MOD.] or [SLOW]: Playback pause

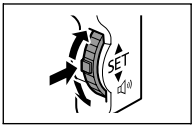
FUNC.
(52)

OFF	D.EFFECT OFF

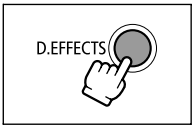
1. **Set the camcorder to** CAMERA• **or** PLAY(VCR)• **mode.**
 CAMERA• **mode: Set the mode dial to a mode other than AUTO or .**
2. **Press the FUNC. button.**



3. **Select the digital effects symbol followed by [MULTI-IMAGE SCREEN].**
4. **Select [S.SPEED] and select the transition speed.**
 - Manual: For capturing images manually.
 - Fast: Every 4 frames
 - Moderate: Every 6 frames (8 frames in Slow Shutter mode)
 - Slow: Every 8 frames (12 frames in Slow Shutter mode)



5. **Select [S.SPLIT] and select the number of sequences.**
6. **Select [SET] and press the FUNC. button.**
 " " appears.
7. **Press the D.EFFECTS button.**
 - The symbol turns green.
 - FAST, MODERATE, SLOW: The set number of images will be captured at the set speed. To cancel the multi-image screen, press the D.EFFECTS button.
 - MANUAL: Images will be captured each time you press the D.EFFECTS button. The blue frame indicating the next sequence disappears after the last image. Pressing the D.EFFECTS button for more than 1 second cancels the images one after another.



8. **Press the start/stop button to begin recording.**
 The multi-image screen is recorded on the tape.

PLAY(VCR)• mode: Pressing any tape operation button (such as play or pause), or performing date search cancels the multi-image screen.

Combining Images (Card Mix)

You can produce effects not possible with just a tape with the Card Mix function. Choose one of the sample images provided on the supplied DIGITAL VIDEO SOLUTION DISK (such as picture frames, backgrounds and animations) and combine it with the live video recording.

Movies recorded on a memory card cannot be combined with camcorder recordings.

Card Chroma Key (CARD CHROMA)



Combines frames with your recordings. The live video recording will appear in place of the blue area of the card mix image.

Mix level adjustment: blue area of the still image.

Card Luminance Key (CARD LUMI.)



Combines illustrations or title with your recordings. The live video recording will appear in place of the light area of the card mix image.

Mix level adjustment: light area of the still image.

Camera Chroma Key (CAM. CHROMA)



Combines backgrounds with your recordings. Record your subject in front of a blue curtain, and the subject not blue will be superimposed on the card mix image.

Mix level adjustment: blue area of the live video recording.

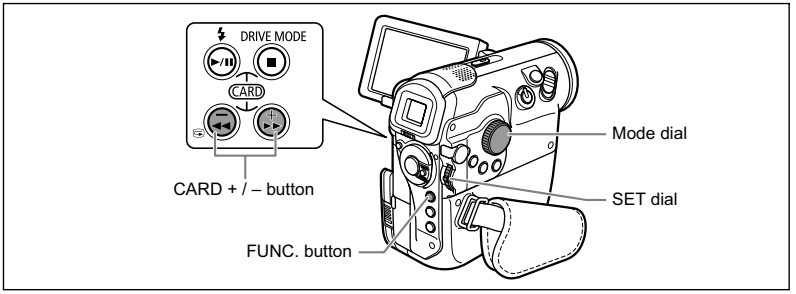
Card Animation (C. ANIMATION)



Combines animations with your recordings. You can choose from 3 types of card animation effects.

- Corner: Animation appears on the upper left and the lower right corner of the screen.
- Straight: Animation appears on the top and bottom of the screen and moves to the right and left.
- Random: Animation moves randomly in the display.

Mix level adjustment: blue area of the card animation image.



FUNC.
(52)

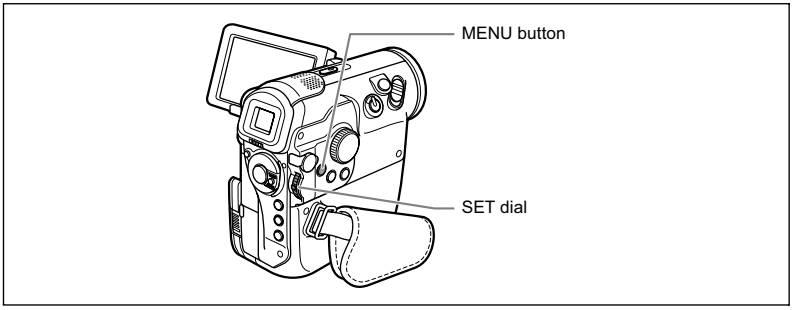
D.EFFECT OFF

1. **Set the camcorder to** CAMERA•⏀ **mode.**
2. **Upload a sample image from the DIGITAL VIDEO SOLUTION DISK to the memory card.**
 Refer to *Adding Still Images from Your Computer to the Memory Card* in the Digital Video Software Instruction Manual.
3. **Set the mode dial to a mode other than** AUTO**.**
4. **Press the FUNC. button.**
5. **Select the digital effects symbol followed by [CARD MIX].**
6. **Select the image you wish to combine with the CARD+/– button.**
7. **Select [MIX TYPE] and select the mix type matching the sample image you have selected.**
 When you have selected [C.ANIMATION], select the animation type and press the SET dial.
8. **To adjust the mix level, select [MIX LEVEL], adjust it with the SET dial and select [SET].**
9. **Press the FUNC. button.**
 " " appears.
10. **Press the D.EFFECTS button.**
 - " " turns green and the combined image appears.
 - Still images cannot be recorded on the memory card while using the Card Mix function.

❍ Turn off the digital effect when you do not use it.
❍ The camcorder retains the setting even if you turn it off or change the recording program.
❍ The image quality may be slightly lower with digital effects.
❍ Digital effects cannot be used during DV dubbing.

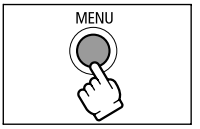
Changing the Settings with the MENU Button

Many of the camcorder's functions are selected from a menu that appears when pressing the MENU button. For menu items, see *List of Menu Items (MENU)* (🕮 65).

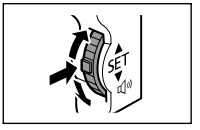


Selecting Menus and Settings

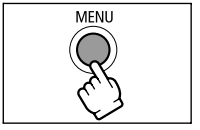
1. **Press the MENU button.**
 The menu appears.



2. **Turn the SET dial to select a submenu and press the SET dial.**
3. **Turn the SET dial to select a menu item and press the SET dial.**
4. **Turn the SET dial to select a setting option and press the SET dial.**



5. **Press the MENU button.**
 The menu disappears.



❍ Pressing the MENU button at any time closes the menu.
❍ Items that are not available appear in gray.

List of Menu Items (MENU)

Available menu items vary depending on the operation mode. Default settings are in boldface text.

For details on each function, see the reference page. Functions without reference page are explained below the tables.

E

CAMERA SETUP

Menu Items	Setting Options						
A.SL SHUTTER	**ON**, OFF	○		○		-	
D.ZOOM	**OFF**, 40x, 200x	○				-	
IMG STAB	**ON**, OFF	○				-	
WIDESCREEN	ON, **OFF**	○				74	
AF AST LAMP	**AUTO**, OFF	○		○		85	
FOCUS PRI.	**ON**, OFF			○		-	
SPOT AE POINT	**CENTER**, AF POINT			○		-	
ND	**AUTO**, OFF			○		-	
REVIEW	OFF, 2s **2sec**, 4s 4sec, 6s 6sec, 8s 8sec, 10s 10sec			○		-	

A.SL SHUTTER: The camcorder automatically uses slow shutter speeds to record brightly in places with insufficient lighting.

- ❍ The camcorder uses shutter speeds down to 1/30 (1/15 in CAMERA• mode).
- ❍ Available when the mode dial is set to AUTO or **P**.
- ❍ In CAMERA• mode, set the flash mode to (flash off).
- ❍ When a trailing afterimage appears, set it to [OFF].
- ❍ If " " (camcorder shake warning) appears, we recommend stabilizing the camcorder, for example, by mounting it on a tripod.

D.ZOOM: Selects the digital zoom setting.

- ❍ When the digital zoom is activated, the camcorder automatically switches between optical and digital zoom.
- ❍ With digital zoom, image resolution becomes lower the more you zoom in.
- ❍ The zoom indicator extends in light blue when the digital zoom is set to 40x and extends further in dark blue when set to 200x.
- ❍ Digital zoom cannot be used in the following cases:
 - In the night modes
 - With the multi-images screen

IMG STAB: The image stabilizer compensates for camcorder shake even at full telephoto.

- ❍ The image stabilizer is designed to compensate a normal degree of camcorder shake.
- ❍ The image stabilizer may not be effective when recording in dark places using the night modes.
- ❍ The image stabilizer cannot be turned off when the mode dial is set to AUTO.
- ❍ We recommend turning off the image stabilizer when using a tripod or when panning.

FOCUS PRI.: The camcorder records the still image once focus is adjusted.

❍ Set it to [OFF] when you wish to record a still image as soon as you press the PHOTO button.
❍ When set to [OFF], no focusing frame appears.
❍ The setting cannot be turned off when the mode dial is set to AUTO.
❍ In Fireworks mode (SCN) the setting is automatically turned off.

SPOT AE POINT: Changes the setting of AE spot frame for light metering when the light metering mode is set to [SPOT] in the FUNC. menu.

[CENTER]: The camcorder sets the exposure on the subject in the center of the screen.

[AF POINT]: The AE spot frame is tied to the AF frame when the focusing mode is set to the 9 AF frames selection.

❍ The spot AE point is set to [CENTER] when set the mode dial to a setting other than **P**, **Tv**, or **Av**.
❍ The last setting will be retained even if you change the position of the mode dial.

ND: The ND filter activates automatically to prevent overexposure.

❍ Available when the mode dial is set to **P**.

REVIEW: Selects the time to display an image after it has been recorded.

❍ You can erase (📖 95) or protect (📖 94) the image when you press the FUNC. button while you are reviewing the image, or when you press the FUNC. button right after recording.
❍ [REVIEW] cannot be selected when (continuous shooting), (high-speed continuous shooting) or (auto exposure bracketing) is selected.

CARD OPERATIONS (*in index screen display)

Menu Items	Setting Options					
PRINT ORD. ALL ERASE	**NO**, YES				○	118
TRANS. ORD. ALL ERASE	**NO**, YES				○	124
ERASE ALL IMAGES	**NO**, YES				○	95
FORMAT	**NO**, YES				○	96
➡ PROTECT*					○	94
➡ PRINT ORDER*					○	117
➡ TRANSFER ORDER*					○	124

VCR SETUP

Menu Items	Setting Options					
REC MODE	SP **STD PLAY**, LP LONG PLAY	○	○			-
AV ➡ DV/	ON ON, OFF **OFF**		○			103
VIDEO INPUT	**VIDEO**, S S VIDEO		○			-

REC MODE: Switches the recording mode. The long play mode extends the tape usage by 1.5 times.

- ❍ Tapes recorded in LP mode cannot be used for audio dubbing.
- ❍ Depending on the nature and usage condition of the tape, picture and sound recorded in LP mode may be distorted. We recommend using the SP mode for important recordings.
- ❍ If you record in both SP and LP modes on the same tape, the playback picture may become distorted and the time code may not be written correctly.
- ❍ If you play back a tape that has been recorded in LP mode with another digital device on this camcorder, or vice versa, picture and sound may become distorted.

VIDEO INPUT: When recording from an analog line-in (📖 98) or when converting analog signals to digital (📖 102), select the appropriate input signal corresponding to the output of the analog device connected to the camcorder.

[VIDEO]: When you connect an analog device (VCR, TV or camcorder) via the audio/video terminal.

[S VIDEO]: When you connect an analog device (VCR, TV or camcorder) via the S-video terminal.

AUDIO SETUP

Menu Items	Setting Options					
OUTPUT CH	**L/R**, L/L, R/R		○			-
AUDIO DUB.	**AUDIO IN**, MIC. IN		○			104
WIND SCREEN	**AUTO**, OFF	○	○	○		73
MIC ATT	ON, **OFF**	○		○		72
MIC LEVEL	**AUTO**, MANUAL	○				71
12bit AUDIO	**STEREO1**, STEREO2, MIX/FIXED, MIX/VARI.		○			105
MIX BALANCE	**1 2**		○			105
AUDIO MODE	16bit, **12bit**	○	○			-
PHONES VOL.		○		○		-

OUTPUT CH: Switches the output channels when playing back a tape with audio recorded on two channels.

- ❍ [L/R]: Stereo: L+R channels, Bilingual: Main+Sub.
- ❍ [L/L]: Stereo: L channel, Bilingual: Main.
- ❍ [R/R]: Stereo: R channel, Bilingual: Sub.

AUDIO MODE: Switches the audio recording mode.

- ❍ [16bit] records in high sound quality.
- ❍ Select [12bit] if you plan to dub audio later.

PHONES VOL.: Adjusts the headphones volume during recording.

- ❍ Turn the SET dial up or down to adjust the volume.

DISPLAY SETUP

Menu Items	Setting Options					
BRIGHTNESS	– +	○	○	○	○	-
LCD MIRROR	**ON**, OFF	○		○		-
TV SCREEN	**ON**, OFF	○		○		-
	ON, **OFF**		○		○	
DISPLAYS	**ON**, OFF<PLAYBK>		○		○	-
6SEC.DATE	ON, **OFF**		○			-
DATA CODE	DATE, TIME, **DATE&TIME**, CAMERA DATA, CAM.&D/T		○			77
	DATE, TIME, **DATE&TIME**				○	
LANGUAGE	DEUTSCH, **ENGLISH**, ESPAÑOL, FRANÇAIS, ITALIANO, РУССКИЙ, 简体中文, **繁體中文**, 한국어, 日本語	○	○	○	○	25
DEMO MODE	**ON**, OFF	○		○		-

BRIGHTNESS: Adjusts the brightness of the LCD screen.

❍ Turn the SET dial up or down to adjust the brightness.

❍ Changing the brightness of the LCD screen does not affect that of the viewfinder or the recordings.

LCD MIRROR: The image appears mirror reversed when you rotate the LCD panel so that the screen faces in the same direction as the lens.

❍ When [LCD MIRROR] is set to [ON], only tape or card operation and self-timer displays appear on the LCD screen (all displays appear on the viewfinder screen).

TV SCREEN: Shows the camcorder displays on a connected TV screen.

❍ You can also use the TV SCREEN button on the wireless controller.

DISPLAYS: Shows the displays on the screen during playback.

❍ When set to [OFF]:

- Displays except for the data code disappear (the displays for magnification of a playback image and digital effects, the audio level indicator and the FUNC. menu still appear).
- Tape operation displays appear for approximately 2 seconds.
- Displays also disappear from the connected TV, except for some warning messages.

6SEC. DATE: The camcorder displays the date and time for 6 seconds when you begin playback, or to indicate that date or time zone has changed.

❍ The 6-second auto date appears even if [DISPLAYS] is set to [OFF].

DEMO MODE: The demonstration mode displays the camcorder's main features. It starts automatically when you leave the camcorder turned on without loading a recording media for more than 5 minutes using the power adapter.

❍ To cancel the demo mode once it has begun, press any button, turn off the camcorder or load a recording media.

SYSTEM

Menu Items	Setting Options					
WL. REMOTE	**ON**, OFF	○	○	○	○	-
BEEP	**HIGH VOLUME**, LOW VOLUME, OFF	○	○	○	○	-
POWER SAVE	**ON**, OFF	○		○		-
FILE NOS.	RESET, **CONTINUOUS**	○	○	○		-

WL. REMOTE: Sets the camcorder to be operated with the wireless controller.

BEEP: A beep sounds upon operations such as turning on the camcorder, during self-timer countdown or warnings such as condensation.

POWER SAVE: When powered by a battery pack, the camcorder shuts off after 5 minutes when the camcorder is left without any operation to save power. Approximately 30 seconds before the camcorder shuts off, "AUTO POWER OFF" appears in the center of the screen.

FILE NOS.: Select the image numbering method upon inserting a new memory card.

Images are automatically assigned image numbers from 0101 to 9900, and stored in folders containing up to 100 images. Folders are numbered from 101 to 998.

[RESET]: The image number starts at 101-0101. If the memory card already contains image files, the consecutive image number will be assigned.

[CONTINUOUS]: The consecutive image number of the last recorded image will be assigned. If a higher image number already exists on the memory card, the consecutive number will be assigned. This is useful for organizing images on a computer.

❍ We recommend setting [FILE NOS.] to [CONTINUOUS].

D/TIME SET

Menu Items	Setting Options					
T.ZONE/DST		○	○	○	○	26
DATE/TIME		○	○	○	○	26
DATE FORMAT	Y.M.D: 2005. 1. 1 AM12:00, **M.D,Y: JAN. 1, 2005 AM12:00,** D.M.Y: 1. JAN.2005 AM12:00	○	○	○	○	-

DATE FORMAT: Changes the displayed date format (includes date format for printing).

MY CAMERA

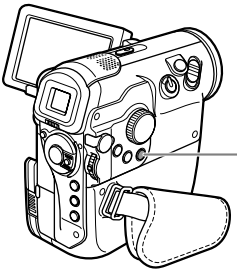
Menu Items	Setting Options					
CREATE S-UP IMAGE	**NO**, YES				○	75
SEL. S-UP IMG	OFF, **CANON LOGO**, MY IMAGE				○	-
S-UP SOUND	OFF, **DEFAULT**, MY SOUND	○	○	○	○	
SHTR SOUND						
OPER.SOUND						
SELF-T SOUND						

SEL. S-UP IMG, S-UP SOUND, SHTR SOUND, OPER. SOUND, SELF-T SOUND: Changes the My Camera settings (the start-up image and the sounds made for start-up, shutter, and operation) to personalize your camcorder.

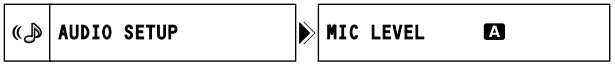
❍ When selecting the settings, you can check the sound and image. To check the sound, make sure to set beep to a setting other than [OFF] in the menu.

Adjusting the Audio Recording Level

You can manually adjust the audio recording level of the built-in microphone or an external microphone.

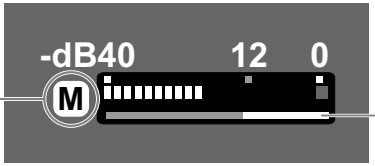


MENU (64)



1. **Set the camcorder to** CAMERA•⊡ **mode.**
2. **Set the mode dial to a mode other than** AUTO**.**
3. **Press the MENU button and select [AUDIO SETUP]. Select [MIC LEVEL], set it to [MANUAL] and press the MENU button.**
 The audio level indicator appears.
4. **Adjust the level with the SET dial.**
 - The maximum level should only slightly exceed –12 dB.
 - Sound may be distorted if the indicator for 0 dB lights up in red.
5. **Press the AUDIO LEVEL button.**
 The green bar disappears.

❍ **About the audio level indicator:**



When [MIC LEVEL] is set to [AUTO] or in the PLAY(VCR)▪ mode, pressing the AUDIO LEVEL button will alternately turn audio level indicator on and off.

❍ The audio level can be changed when the green bar is displayed. We recommend hiding the bar when you have finished adjusting to prevent accidental changes.

❍ **When sound is distorted even though the audio level indicator shows an appropriate level:**
Activate the microphone attenuator by setting [MIC ATT] to [ON]. The microphone attenuator can also be used when recording on a memory card.

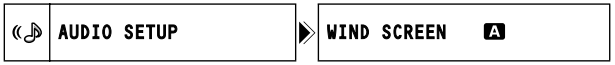
❍ We recommend using headphones when manually adjusting the audio level, or using the microphone attenuator.

❍ Turning the audio level all the way down will prevent sound recording.

Using the Wind Screen

The camcorder reduces wind noise automatically. However, you can turn off the wind screen when recording indoors, or when you want the microphone to be as sensitive as possible.

MENU (📖 64)



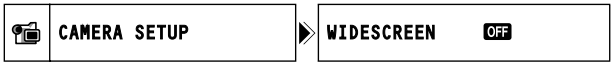
1. **When setting the camcorder to** CAMERA• **or** CAMERA• **mode, set the mode dial to a mode other than AUTO.**
 When setting the camcorder to PLAY(VCR)• **mode, make sure that [AUDIO DUB.] is set to [MIC. IN] (📖 67).**
2. **Press the MENU button and select [AUDIO SETUP]. Select [WIND SCREEN], set it to [OFF] and press the MENU button.**
 " " appears when you turn the wind screen off.

The wind screen function can only be used with the built-in microphone.

Widescreen TV Recording (16:9)

The camcorder uses the full width of the CCD providing high-resolution 16:9 recording.

MENU
(📖 64)



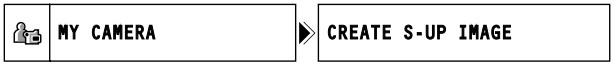
1. **Set the camcorder to** CAMERA•⏺ **mode.**
2. **Press the MENU button and select [CAMERA SETUP]. Select [WIDESCREEN], set it to [ON] and press the MENU button.**
 - "WIDE" appears.
 - The LCD screen switches to the "letterbox" display. The picture on the viewfinder appears horizontally squeezed.

- When you turn off the image stabilizer, you will get a larger horizontal angle of view.
- When playing back a widescreen recording on a TV, switch the TV to widescreen mode (refer to the instruction manual of your TV). If you play back a widescreen recording on a normal TV, the image appears horizontally squeezed. TVs with S1 terminal or Video ID-1 system switch automatically to widescreen mode.

Creating a Start-up Image

You can create a start-up image using a still image on the memory card.

MENU (64)

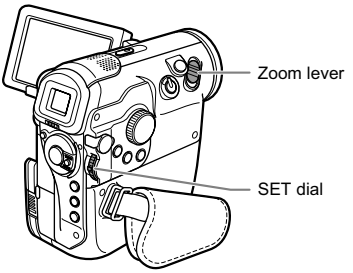


1. **Set the camcorder to** PLAY(VCR)• **mode.**
2. **Select a still image with the CARD +/– buttons.**
3. **Press the MENU button and select [MY CAMERA].**
4. **Select [CREATE S-UP IMAGE].**
 [SET THIS AS START-UP IMAGE?], [YES] and [NO] appears.
5. **Select [YES].**
 [OVERWRITE MY IMAGE?], [NO] and [YES] appears.
6. **Select [YES].**
 The still image will be saved, and the image that was saved to [MY IMAGE] is erased.
7. **Press the MENU button.**

- ❍ You can save your original images, or the images and sounds contained in the supplied software (ZoomBrowser EX for Windows or ImageBrowser for Macintosh) to the setting options [MY IMAGE] and [MY SOUND]. For details, refer to the *Digital Video Software Instruction Manual*.
- ❍ Retain the original data of the still image you have set as the start-up image on your computer or removable disk.

Magnifying the Image

The playback image can be magnified up to 5 times.

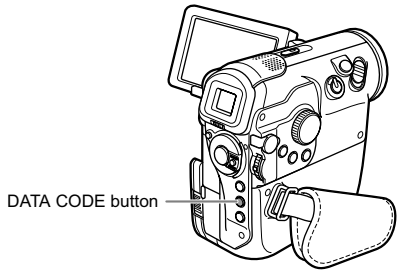


1. **Set the camcorder to** PLAY(VCR)• **or** PLAY(VCR)• **mode.**
2. **Move the zoom lever toward T.**
 - The image is magnified by 2 times.
 - A frame appears indicating the position of the magnified area.
 - To further enlarge the image, move the zoom lever toward **T**. To shrink the image below 2 times magnification, move the zoom lever toward **W**.
 - A will display for images that cannot be enlarged.
3. **Select the magnified area with the SET dial.**
 Turn the SET dial to move the image to the right and left, or up and down. Pressing the SET dial switches between the directions.
4. **To return to the original image size, move the zoom lever toward W until the magnification frame disappears.**

Movies played back from a memory card cannot be magnified.

Displaying the Data Code

The camcorder maintains a data code containing recording date and time and other camera data such as shutter speed and exposure (f-stop).



Selecting the Date/Time Display Combination

MENU (64)

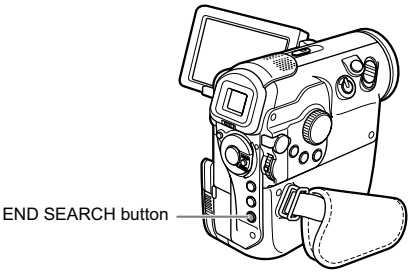
DISPLAY SETUP/ ▶ DATA CODE

1. **Set the camcorder to** PLAY(VCR)• **or** PLAY(VCR)• **mode.**
2. **Press the MENU button and select [DISPLAY SETUP/].**
3. **Select [DATA CODE] and select the data code combination.**
 When playing back a memory card, you can only display the date and/or time.
4. **Press the MENU button.**
5. PLAY(VCR)• **mode: Play back a tape and press the DATA CODE button.**
 PLAY(VCR)• **mode: Press the DATA CODE button.**
 Pressing the DATA CODE button again makes the data code disappear.

❍ The data code will not display the next time you turn on the camcorder.
❍ When the data code is being displayed, the level indicator will not display.

End Search

When you have played back a tape, you can use this function to locate the end of the last recorded scene.



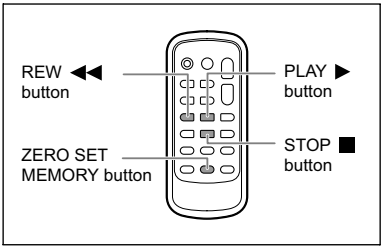
1. **Set the camcorder to** PLAY(VCR)• **mode.**
2. **Play back the tape.**
3. **In stop mode, press the END SEARCH button.**
 - “END SEARCH” appears.
 - The camcorder rewinds/fast forwards the tape, plays back the last few seconds of the recording and stops the tape.
 - Pressing the button again cancels the search.

❍ End search cannot be used once you unload the cassette.
❍ If there are blank sections between recordings or sections recorded in different formats on the same tape, the end search function may not work properly.
❍ You cannot use end search to locate the editing end of audio dubbing.

Returning to a Pre-marked Position

If you wish to return to a particular scene later, mark the point with the zero set memory and the tape will stop at that point when you rewind/fast forward the tape.

This function is operated with the wireless controller.



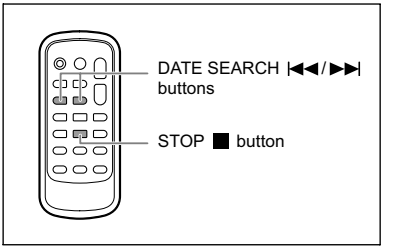
1. **Set the camcorder to** CAMERA•📼 **or** PLAY(VCR)•📼 **mode.**
2. **Press the ZERO SET MEMORY button at the point you wish to return to later during recording or playback.**
 - "0:00:00 M" appears.
 - To cancel, press the ZERO SET MEMORY button again.
3. **When you have finished recording, set the camcorder to** 📼 **and rewind the tape.**
 When you have finished playback, rewind the tape.
 - " ◀◀ " appears.
 - The tape stops automatically at "0:00:00 M".
 - The tape counter changes to time code.

If the time code has not been recorded consecutively, the tape may not stop correctly at the scene marked with the zero set memory.

Date Search

You can locate the change of the date/time zone with the date search function.

This function is operated with the wireless controller.



1. **Set the camcorder to** PLAY(VCR)• **mode.**
2. **In stop mode, press the ▶▶| or |◀◀ button to begin searching.**
 - Press more than once to search for further date changes (up to 10 times).
 - Press the STOP ■ button to stop searching.

❍ A recording of longer than a minute per date/area is required.
❍ Date search may not function if the data code is not correctly displayed.

Selecting the Image Quality/Size

You can select the image quality of still images, and the image size of still images and movies.

Still images are compressed and recorded in JPEG (Joint Photographic Experts Group). Movies are recorded in Motion JPEG.

The number of still images and maximum recording time of movies that can be recorded on a memory card vary according to the recording condition. The estimated figures are as follows:

Number of still images that can be recorded on a memory card:

Image Size	Image Quality	No. of Images			File Size per Image
		Supplied card	128MB	512MB	
L 2304X1736	Super Fine	3	45	185	2540KB
	Fine	6	70	290	1630KB
	Normal	15	155	625	770KB
M1 1632X1224	Super Fine	9	85	350	1360KB
	Fine	13	135	545	880KB
	Normal	25	250	1000	480KB
M2 1280X960	Super Fine	15	140	555	850KB
	Fine	20	215	860	560KB
	Normal	40	395	1585	300KB
S 640X480	Super Fine	75	690	2740	176KB
	Fine	105	955	3770	120KB
	Normal	170	1525	6035	72KB

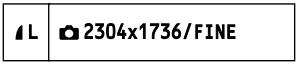
Maximum recording time of a movie on a memory card:

Image Size	Recording Time			File Size per Second
	Supplied card	128MB	512MB	
320 320 x 240	50 sec.	8 min.	32 min.	250KB
160 160 x 120	1 min.	17 min.	67 min.	120KB

- Depending on the number of images on the memory card (Windows: more than 1800 images; Macintosh: more than 1000 images), you may not be able to download images to a computer. In such case, use a card reader.
- Connection to a PictBridge compliant printer will not work when the memory card contains more than 1800 images. For best performance, we recommend to keep the number of images on the memory card less than 100.
- Users of Windows XP: When you plan to connect the camcorder to a computer using a USB cable, keep the length of one movie shorter than approx. 12 min. in 320 x 240 and 35 min. in 160 x 120.

Selecting the Still Image Size and Quality

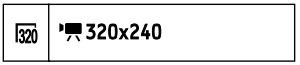
FUNC.
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1. **Set the camcorder to** CAMERA• **mode.**
2. **Press the FUNC. button.**
3. **Select the still image size/quality symbol.**
4. **Select the still image size.**
 The number at the lower right corner indicates the number of still images available on the memory card (the same as the number displayed at the upper right corner).
5. **Select the still image quality.**
6. **Press the FUNC. button.**

Selecting the Movie Size

FUNC.
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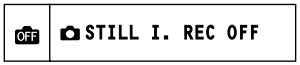


1. **Set the camcorder to** PLAY(VCR)• **or** CAMERA• **mode.**
2. **Press the FUNC. button.**
3. **Select the movie size symbol followed by the setting option.**
 The number at the lower right corner indicates the remaining recording time on the memory card (the same as the number displayed at the upper right corner).
4. **Press the FUNC. button.**

Simultaneous Recording on Tape and Memory Card

When you are recording a movie on a tape, you can record the same picture as a still image on the memory card. The size of the still image will be 640 x 480. The image quality can be selected.

FUNC.
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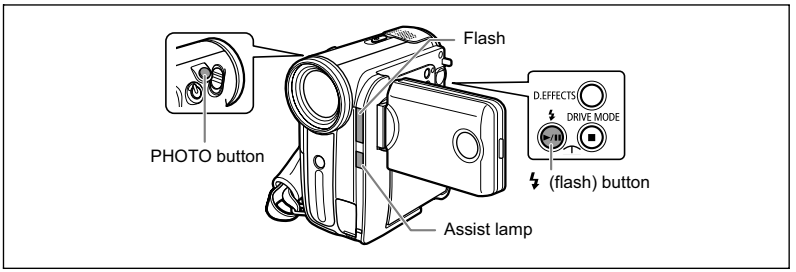
1. **Set the camcorder to** CAMERA• **mode.**
2. **Press the FUNC. button.**
3. **Select the still image recording symbol followed by a setting option.**
4. **Press the FUNC. button.**
5. **While you are recording a movie, press the PHOTO button.**
 The still image is recorded on the memory card while the screen continues to show the video recording.

- The quality of the still image will be slightly lower than that of a 640 x 480 image recorded in the CAMERA• mode.
- The still image cannot be recorded on a memory card when the digital effect is activated.
- The still image cannot be recorded on a memory card when the widescreen mode is selected.

Using the Flash

You can use the built-in flash for recording still images in dark places. The flash is equipped with the red-eye reduction mode.

ϟᴬ (auto)	The flash fires automatically according to the brightness of the subject.
(red-eye reduction, auto)	The flash fires automatically according to the brightness of the subject. The assist lamp lights up to reduce the red-eye effect.
ϟ (flash on)	The flash always fires.
(flash off)	The flash does not fire. Use this setting in places where flash photography is prohibited.



1. **Set the camcorder to** CAMERA• **or** CAMERA• **mode.**
2. **Press the ϟ (flash) button.**
 - Set the camcorder to a recording program other than the Fireworks mode (SCN).
 - The setting changes with each press of the button.
 - The symbol of the selected flash mode appears on the screen. "ϟᴬ" disappears after 4 seconds.
3. **Press the PHOTO button halfway.**
 In the CAMERA• mode, the flash can be used in record pause mode only if the still image recording setting is not [STILL I. REC OFF].
4. **Press the PHOTO button fully.**
 The flash fires.

- ❍ Do not fire the flash close to people's eyes.
- ❍ Do not fire the flash at persons while they are driving.
- ❍ Do not fire the flash with the flash bulb covered with your hand.

- ❍ The practical range of the flash is approx. 1 to 2 m (3.3 to 6.6 ft.). The range depends upon the recording condition.
- ❍ The range of the flash decreases in continuous shooting mode.
- ❍ For the red-eye reduction mode to be effective, the subject needs to look at the assist lamp. The degree of reduction depends upon the distance and on each individual.

❍ The flash will not fire in the following cases:
- When you press the EXP button in ϟᴬ (auto) or ◎ (red-eye reduction, auto) mode.
- When ϟᴬ (auto) or ◎ (red-eye reduction, auto) is selected and a shutter speed of 1/2000 is set in the CAMERA• mode.
- During auto exposure bracketing.

❍ When ϟ (flash on) is selected and a shutter speed of 1/2000 is set in the CAMERA• mode, the shutter speed becomes set to 1/1000 and the flash fires.
❍ We recommend not using the flash when the optional Wide-converter or Tele-converter is attached. Their shadows appear on the screen.
❍ The flash mode cannot be selected when exposure is locked, or after the first still image in Stitch Assist mode.
❍ The red-eye reduction mode cannot be used in stitch assist mode.
❍ **About the AF-Assist Lamp:**
While you press the PHOTO button halfway, the assist lamp may light up as AF-assist lamp responding to the brightness of the subject to enable the camcorder to focus more accurately.
- The camcorder may not be able to focus even though the AF-assist lamp is lighting.
- The AF-assist lamp lights up brightly. Consider turning off the AF-assist lamp in public places such as in restaurants or theaters.

Selecting the Light Metering Mode

You can select the method the camera uses to evaluate the brightness of your subject.

[⊙] EVALUATIVE	Appropriate for standard shooting conditions, including backlit scenes. The camcorder divides images into several zones for light metering. It evaluates complex lighting conditions, such as the position and brightness of the subject, background, direct light or backlight, and adjusts the exposure of the main subject accordingly.
[□] CENT.WEIGHT.AVERAGE	Averages the light metered from the entire screen, giving more weight to the subject in the center.
[•] SPOT	Meters the area within the spot AE point frame. Use this setting for adjusting the exposure matching the subject in the center of the screen. The spot AE point frame can be tied to the AF frame (📖 65).

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1. **Set the camcorder to CAMERA• mode.**
2. **Set the mode dial to P, Tv or Av.**
3. **Press the FUNC. button.**
4. **Select the light metering mode symbol followed by a setting option.**
5. **Press the FUNC. button.**
 If you have selected [•] SPOT], "□" appears.

Changing the Focusing Mode

You can change the AF (autofocus) frame selection mode.

9 Point AiAF (Auto selection)	Depending on the shooting conditions, an AF frame is automatically selected from the 9 frames and focused.
Center point	Of 9 AF frames, the center one is selected to focus. This is convenient for making sure the focus is exactly where you want it.
9 AF frames selection	Focuses the area within the AF frame selected from the 9 frames.

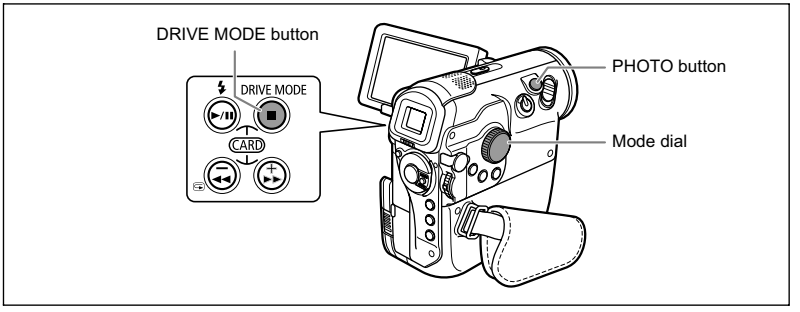
1. **Set the camcorder to** CAMERA• **mode.**
2. **Set the mode dial to a mode other than AUTO.**
 - The setting differs depending on the position of the mode dial.
 AUTO: 9 Point AiAF
 , , , , , SCN*: 9 Point AiAF or Center point
 P, **Tv**, **Av**: 9 AF frames selection
 * Focusing method cannot be changed in the Fireworks mode (SCN).
3. **Turn the SET dial to select the focusing mode.**
 - With [9 Point AiAF] a large frame displays on the screen. (The frame does not display in AUTO mode.)
 - With [Center point] a frame displays in the center of the screen.
 - With [9 AF frames selection]: 9 frames display on the screen. Turn the SET dial to select the AF frame from the 9 frames.
4. **Press the PHOTO button halfway.**
5. **Press the PHOTO button fully.**



You cannot select the AF frame during recording in Stitch Assist mode.

Selecting the Drive Mode

(Single)	Records a single still image when you press the PHOTO button.
(Continuous Shooting) (High-Speed Continuous Shooting)	Captures a quick series of still images while you press the PHOTO button. For the number of frames per second, refer to the table on the next page.
(AEB (Auto Exposure Bracketing))	The camcorder records a still image in three different exposures (dark, normal, light in 1/2 EV steps), allowing you to choose the perfect exposed shot.



1. **Set the camcorder to** CAMERA• **mode.**
2. **Set the mode dial to a mode other than** AUTO**.**
3. **Press the DRIVE MODE button to switch between the drive modes.**
 The setting changes with each press of the button.
4. **Press the PHOTO button halfway.**
5. **Continuous Shooting/High-Speed Continuous Shooting: Press and hold the PHOTO button fully.**
 A series of still images will be recorded as long as you hold the PHOTO button.
 Auto Exposure Bracketing: Press the PHOTO button fully.
 Three still images in different exposures are recorded to the memory card.

❍ The drive mode can also be selected from the FUNC. menu (🕮 52).
❍ When the FUNC. menu is being displayed, the DRIVE MODE button cannot be used.
❍ Maximum number of continuous shots at one time:

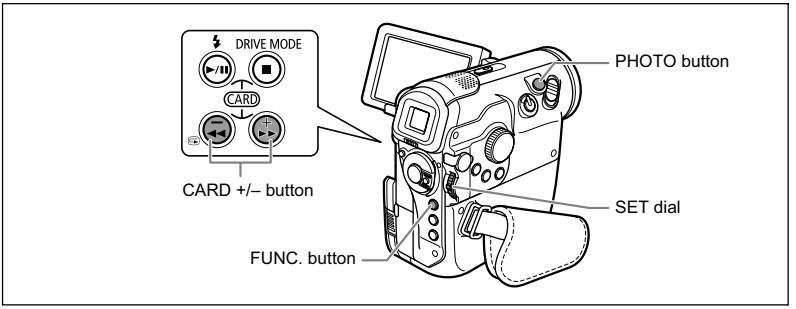
Still Image Size	Frames per Second		Maximum Number of Continuous Shots
	Normal speed	High speed	
2304 x 1736	2.1 frames	2.1 frames	10 images
1632 x 1224	2.5 frames	3.8 frames	10 images
1280 x 960	3 frames	5 frames	60 images
640 x 480	3 frames	5 frames	60 images

These figures are approximate and vary with the recording conditions and subjects. Sufficient space on the memory card is required. Continuous shooting stops when card is full.

❍ The number of frames per second will be lower when "" (camcorder shake warning) is displayed on the screen.
❍ When using the built-in flash in normal and high-speed continuous shooting mode:
2304 x 1736/1632 x 1224: 2.1 frames/second
1280 x 960/640 x 480: 2.5 frames/second
❍ Make sure that there is sufficient space on the memory card.

Recording Panoramic Images (Stitch Assist Mode)

You can shoot a series of overlapping images and merge them into one large panoramic scene using the supplied software (PhotoStitch) on a computer.



When Recording in Stitch Assist Mode:

PhotoStitch detects the overlapping portion of adjoining images and merges them. Try to include a distinctive item (landmark, etc.) in the overlapping portion.



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(52)

□	SINGLE

1. **Set the camcorder to** CAMERA• **mode.**
2. **Press the FUNC. button.**
3. **Select the drive mode symbol followed by [STITCH AST].**
4. **Press the SET dial.**
 The Stitch Assist screen appears.
5. **Select the direction with the CARD +/– button.**
 CARD + button: clockwise. CARD – button: counterclockwise.
6. **Select the recording program and zoom on the subject.**
 Adjust focus and exposure manually as necessary. Once the sequence has started, you cannot change the recording program, exposure, zoom or focus.
7. **Press the PHOTO button to record the first image.**
 Direction and number of recorded images appear.
8. **Record the second image so that it overlaps a portion of the first image.**
 - Minor discrepancies in the overlapped area can be corrected with the software.
 - You can retake an image by pressing the CARD +/– button to return to the previous image.
 - A maximum of 26 images can be recorded.

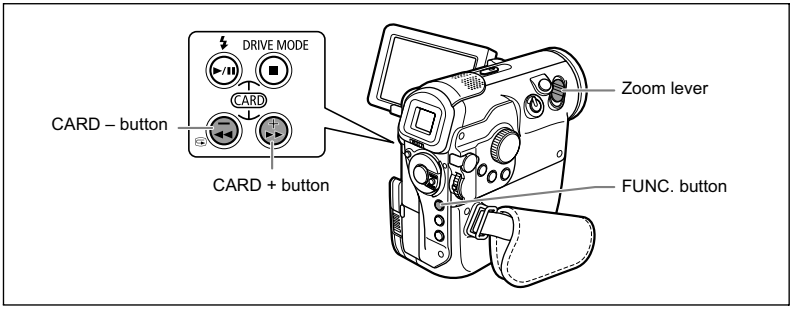
9. Press the FUNC. button after the last image.

- The Stitch Assist screen will disappear. The DRIVE MODE button can also be used to close the Stitch Assist screen.
- For details on how to merge these images, refer to the *Digital Video Software Instruction Manual*.

- ❍ Compose each image so that it overlaps 30 to 50% of the adjoining image. Try to keep the vertical misalignment within 10%.
- ❍ Do not include a moving subject in the overlapping portion.
- ❍ Do not try to stitch images that include both distant and close subjects. They may appear warped or doubled up.

Playing Back/Searching Images

You can display images one after another (slide show) or 6 at one time (index screen). With the Card Jump function, you can quickly locate an image without displaying them one by one.



Slide Show

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(52)

	SLIDE SHOW

1. **Set the camcorder to** PLAY(VCR)• **mode.**
2. **Press the FUNC. button.**
3. **Select [SLIDE SHOW] followed by [START].**
4. **Press the SET dial.**
 - Images are played back one after another.
 - Press the ■ button to stop the slide show.

Index Screen

1. **Set the camcorder to** PLAY(VCR)• **mode.**
2. **Move the zoom lever toward W.**
 - Up to 6 images appear.
 - With movies, the index screen can only be started when the first scene is displayed as a still image.
3. **Turn the SET dial to select an image.**
 - Move the "☞" to the image you wish to view.
 - You can switch between the index pages by pressing the CARD + or CARD – button.
4. **Move the zoom lever toward T.**
 The index screen is cancelled and the selected image is displayed.

Card Jump Function

You can locate images without displaying them one by one. The number in the upper right of the screen indicates the image number of the current image by the total number of images.

1. **Set the camcorder to** PLAY(VCR)• **mode.**
2. **Press and hold the CARD + or CARD – button.**
 When you release the button, the image of the displayed image number appears.

Protecting Images

You can protect important images from accidental erasure when displaying a single image or index screen.

If a memory card is formatted, all still images and movies, even protected ones, will be erased permanently.

Movies can only be protected when the first scene is displayed as a still image.

Protecting during Single Image Playback

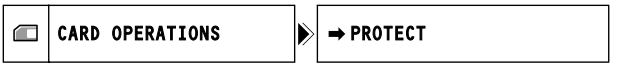
FUNC.
(52)



1. **Set the camcorder to** CAMERA• **or** PLAY(VCR)• **mode.**
2. **Press the FUNC. button.**
 When setting the camcorder to CAMERA• mode, press the FUNC. button while reviewing an image or right after recording.
3. **Select [PROTECT] followed by [ON] and press the SET dial.**
4. **Press the FUNC. button.**
 - " " appears, and now the image cannot be erased.
 - To cancel the protection, select [OFF] in step 3.

Protecting during Index Screen Display

MENU
(64)



1. **Set the camcorder to** PLAY(VCR)• **mode.**
2. **Move the zoom lever toward W.**
 - Up to 6 images appear.
 - Select the image you wish to protect.
3. **Press the MENU button and select [CARD OPERATIONS]. Select [➡ PROTECT] and press the SET dial.**
 - " " appears on the image.
 - To cancel the protection, press the SET dial.
4. **Press the MENU button.**

Erasing Images

You can erase images singly or all at once.

Be careful when erasing images. Erased images cannot be recovered.

❍ Protected images cannot be erased.
❍ Movies can only be erased when the first scene is displayed as a still image.

Erasing a Single Image

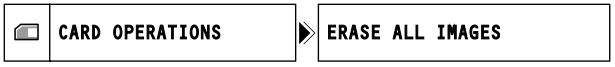
FUNC.
(📖 52)



1. **Set the camcorder to** CAMERA• **or** PLAY(VCR)• **mode.**
2. **Press the FUNC. button.**
 When setting the camcorder to CAMERA• mode, press the FUNC. button while reviewing an image or right after recording.
3. **Select [IMAGE ERASE] followed by [ERASE] and press the SET dial.**
4. **Press the FUNC. button.**

Erasing All Images

MENU
(📖 64)



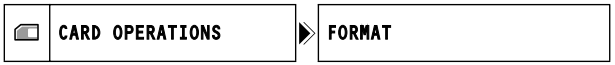
1. **Set the camcorder to** PLAY(VCR)• **mode.**
2. **Press the MENU button and select [CARD OPERATIONS].**
3. **Select [ERASE ALL IMAGES].**
4. **Select [YES] and press the MENU button.**
 All still images or movies with exception of the protected ones are erased.

Formatting a Memory Card

Format new memory cards, or when you get the message “CARD ERROR”. You can also format a memory card to erase all data recorded on it.

- ❍ Formatting a memory card erases all data, including protected images.
- ❍ Images erased by formatting cannot be recovered.
- ❍ If you use a memory card other than the supplied one, format it with the camcorder.

MENU (📖 64)



1. **Set the camcorder to** PLAY(VCR)•🎞 **mode.**
2. **Press the MENU button and select [CARD OPERATIONS].**
3. **Select [FORMAT].**
 [NO] and [YES] appears.
4. **Select [YES].**
 [ALL DATA WILL BE ERASED. FORMAT THIS CARD?], [NO] and [YES] appears.
5. **Select [YES] and press the MENU button.**
 Formatting starts.

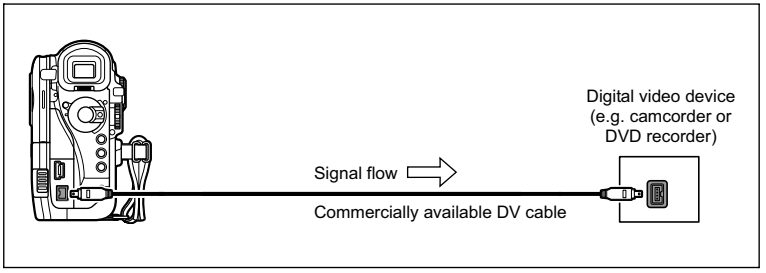
Recording to a VCR or Digital Video Device

You can copy your recordings by connecting the camcorder to a VCR or a digital video device. If you use the DV terminal to connect to a recording digital device (camcorder, DVD recorder, etc.) you can create perfect digital copies with virtually no generation loss in image or sound quality.

Connecting the Devices

① **Connecting a VCR**
See *Playing Back on a TV Screen* (🕮 39).

② **Connecting to a DVD recorder or other digital device with a DV Terminal**
Check the direction before connecting the DV cable. Refer also to the instruction manual of the connected device.



Recording

1. **Set the camcorder to** PLAY(VCR)• **mode and load a recorded cassette.**
2. **Connected device: Load a blank tape or DVD and set the device to record pause mode.**
3. **Locate the scene you wish to copy and pause playback shortly before the scene.**
4. **Play back the tape.**
5. **Connected device: Begin recording when the scene you wish to copy appears. Stop recording when copying is complete.**
6. **Stop playback.**

- ❍ We recommend powering the camcorder from a household power source.
- ❍ When connecting a VCR, the quality of the edited tape will be slightly lower than that of the original.
- ❍ When connecting to a DVD recorder or other digital device with a DV Terminal:
 - If the picture does not appear, reconnect the DV cable or turn the camcorder off and back on again.
 - Proper operation cannot be guaranteed for all digital devices with a DV (IEEE1394) terminal. If operation does not work, use the S-video or AV terminal.
 - When connecting to an external digital device using the DV cable the data code (date, time and camera data) may not be displayed. If you want the data code to appear on the copy, use the S-video or AV terminal instead.

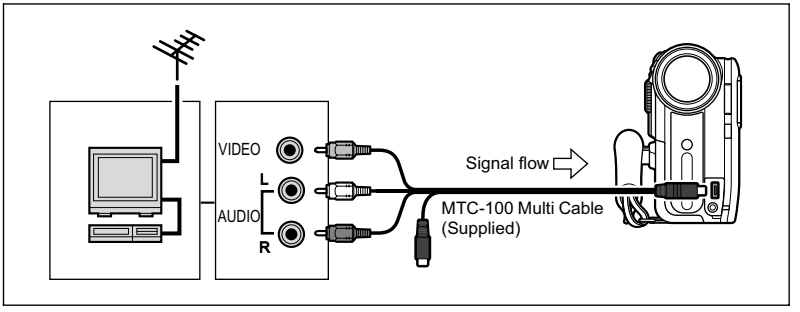
Analog Line-in Recording

You can input video from other analog devices (VCR, TV or camcorder) via the S-video terminal or AV terminal, and record the input video on the tape in the camcorder. You can also record the input video as a movie or still image on a memory card.

Connecting

Refer also to the instruction manual of the connected device.

You can also connect via the S-video terminal (🕮 39).



Recording

1. **Set the camcorder to** PLAY(VCR)• **mode and load a blank cassette.**
2. **Press the MENU button and select [VCR SETUP]. Select [VIDEO INPUT] followed by a setting option and press the MENU button.**
3. **Connected device: Load the recorded cassette.**
4. **Press the REC PAUSE button.**
 In record pause mode and during recording, you can check the picture on the screen.
5. **Connected device: Play back the tape.**
6. **Press the ▶/❚❚ button when the scene you wish to record appears.**
 Recording starts.
7. **Press the ■ button to stop recording.**
 - Press the ▶/❚❚ button to pause recording.
 - Press the ▶/❚❚ button again to restart recording.
8. **Connected device: Stop playback.**

Recording the Input Video on a Memory Card

The size of the still image recorded on the memory card will be 640 x 480. The still image quality and the movie size can be selected.

1. **Set the camcorder to** PLAY(VCR)• **mode.**
 If a cassette is loaded, make sure that the tape is stopped.
2. **Press the MENU button and select [VCR SETUP]. Select [AV➡DV/], set it to [ON] and press the MENU button.**
3. **Selecting the still image quality:**
 Press the FUNC. button. Select the still image quality symbol followed by a setting option and press the FUNC. button.
 Selecting the movie size:
 Press the FUNC. button. Select the movie size symbol followed by a setting option and press the FUNC. menu.
4. **Connected device: Load a recorded cassette and play back the tape.**

When recording a still image:

5. **Press the PHOTO button halfway when the scene you wish to record appears.**
 - The still image, remaining image capacity and other information appear.
 - When you press the PHOTO button on the wireless controller, recording starts immediately.
6. **Press the PHOTO button fully.**

When recording a movie:

5. **Press the start/stop button when the scene you wish to record appears.**
 Pressing the start/stop button again stops recording.

Depending on the analog signal sent from the connected device the input image may be distorted or not be displayed at all (e.g. signals that include copyright protective signals or anomalous signals such as ghost signals).

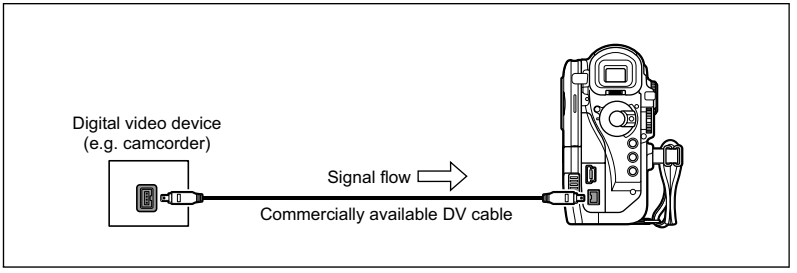
- ❍ We recommend powering the camcorder from a household power source.
- ❍ An image recorded from an image in widescreen mode will be vertically compressed.
- ❍ The data code of the image will reflect the date and time it has been recorded on the memory card.

DV Dubbing

You can input video from other digital video devices via the DV terminal, and record the input video on the tape in the camcorder. You can also record the input video as a movie or still image on a memory card.

Connecting

Check the direction before connecting the DV cable. Refer also to the instruction manual of the connected device.



Dubbing

1. **Set the camcorder to** PLAY(VCR)• **mode and load a blank cassette.**
 If "AV➡DV" is displayed, change the setting (🕮 66).
2. **Connected device: Load the recorded cassette.**
3. **Press the REC PAUSE button.**
4. **Connected Device: Play back the tape.**
 You can check the picture on the camcorder's screen.
5. **Press the ▶/❚❚ button when the scene you wish to record appears.**
 Recording starts.
6. **Press the ■ button to stop recording.**
 - Press the ▶/❚❚ button to pause recording.
 - Press the ▶/❚❚ button again to restart recording.
7. **Connected Device: Stop playback.**

Recording the Input Video on a Memory Card

The size of the still image recorded on the memory card will be 640 x 480. The still image quality and the movie size can be selected.

1. **Set the camcorder to** PLAY(VCR)• **mode.**
 - If a cassette is loaded, make sure that the tape is stopped.
 - If "AV➡DV" is displayed, change the setting (🕮 66).
2. **Selecting the still image quality:**
 Press the FUNC. button. Select the still image quality symbol followed by a setting option and press the FUNC. button.
 Selecting the movie size:

Press the FUNC. button. Select the movie size symbol followed by a setting option and press the FUNC. menu.

3. **Connected device: Load a recorded cassette and play back the tape.**

When recording a still image:

4. **Press the PHOTO button halfway when the scene you wish to record appears.**
 - The still image, remaining image capacity and other information appear.
 - When you press the PHOTO button on the wireless controller, recording starts immediately.
5. **Press the PHOTO button fully.**

When recording a movie:

4. **Press the start/stop button when the scene you wish to record appears.**
 Pressing the start/stop button again stops recording.

- ❍ Blank sections may be recorded as anomalous picture.
- ❍ If the picture does not appear, reconnect the DV cable or turn the camcorder off and back on again.
- ❍ Do not connect any devices to the camcorder's USB terminal.
- ❍ You can only record signals from devices with the DV logo recording in SD system in SP or LP format. (Note that signals from identically shaped terminals may be of different format 📖 128.)

- ❍ We recommend powering the camcorder from a household power source.
- ❍ An image recorded from an image in widescreen mode will be vertically compressed.
- ❍ The data code of the image will reflect the date and time it has been recorded on the memory card.

Copyright Signal

Certain software tapes are copyright protected. If you attempt to play back such tape, "COPYRIGHT PROTECTED PLAYBACK IS RESTRICTED" appears and you will not be able to view the contents of the tape. If you attempt to record from such tape via the DV terminal, "COPYRIGHT PROTECTED DUBBING RESTRICTED" appears and you will not be able to record the contents of the tape.

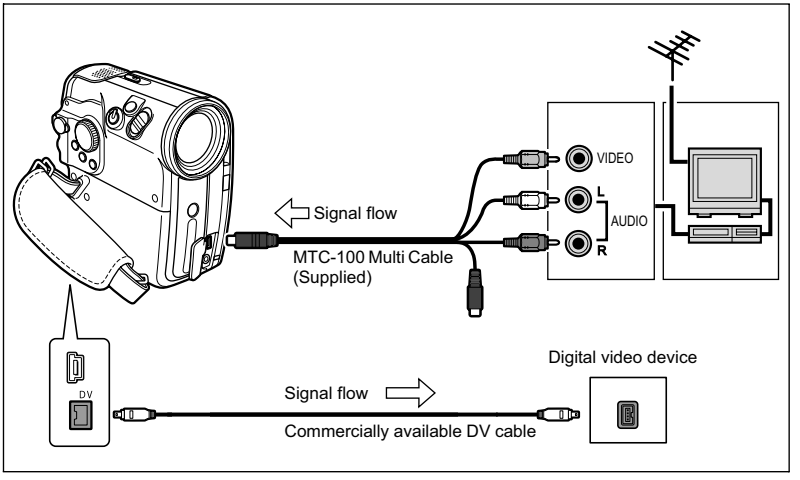
Converting Analog Signals into Digital Signals (Analog-Digital Converter)

By connecting the camcorder to a VCR or 8mm video camcorder, you can convert analog video/audio signals to digital signals and output the digital signals via the DV terminal. The DV terminal serves as output terminal only.

Connecting the Devices

Turn off all devices before starting the connections. Unload the tape from the camcorder. Check the direction before connecting the DV cable. Refer also to the instruction manual of the connected device.

You can also connect a VCR with S (S1)-VIDEO terminal (🕮 39).



Turning On the Analog-Digital Converter

MENU (📖 64)



1. **Set the camcorder to** PLAY(VCR)• **mode.**
 Check the video input setting (📖 66).
2. **Press the MENU button and select [VCR SETUP]. Select [AV➡ DV/], set it to [ON] and press the MENU button.**

- ❍ Depending on the signal sent from the connected device, the conversion from analog to digital signals might not work properly (e.g., signals that include copyright protective signals or anomalous signals such as ghost signals).
- ❍ For normal use, set [AV➡ DV/] to [OFF]. If it is set to [ON], digital signals cannot be input via the camcorder's DV terminal.

- ❍ We recommend powering the camcorder from a household power source.
- ❍ Connecting the camcorder to the computer you can also use the analog-digital conversion to transfer analog recordings to your computer as digital signals. Analog-digital conversion can be performed also when connecting the camcorder to the computer using the USB cable.
 The required equipment and operation is the same as when Transferring Video Recordings to a Computer (📖 119), except for step 3: In this case set the [AV➡ DV/] to [ON]. Check the setting before connecting the camcorder to the computer.
 The analog-digital conversion may not operate properly depending on the software and the specifications and settings of your computer.

Audio Dubbing

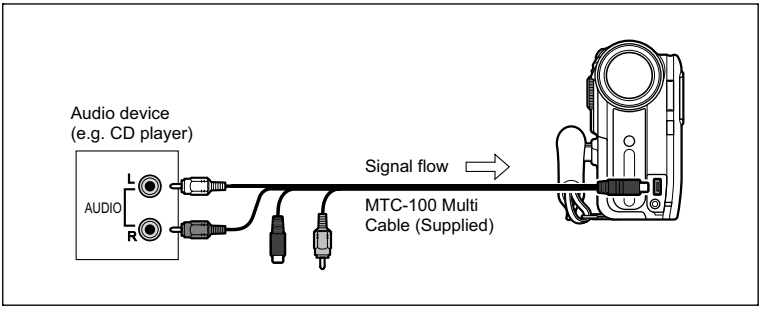
You can add sound from audio devices (AUDIO IN) or with the built-in or an external microphone (MIC. IN).

This function is operated with the wireless controller.

Connecting

① **Connecting an Audio Device**

Refer also to the instruction manual of the connected device.

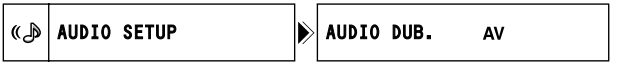


② **Connecting a Microphone**

See *Recording with an External Microphone* (📖 51).

Dubbing

MENU (📖 64)



1. **Set the camcorder to** PLAY(VCR)• **mode and load a recorded cassette.**
 Use a tape recorded in SP, 12-bit mode with this camcorder.
2. **Press the MENU button and select [AUDIO SETUP]. Select [AUDIO DUB.], set it to [AUDIO IN] or [MIC. IN] and press the MENU button.**
3. **Play back the tape.**
4. **When the scene you wish to dub appears press the PAUSE ❚❚ button on the wireless controller.**
5. **Press the AUDIO DUB. button on the wireless controller.**
 "AUDIO DUB." and "⏷ ❚❚" appear.
6. **Press the PAUSE ❚❚ button on the wireless controller to begin dubbing.**
 - Audio device: Begin playback.
 - Microphone: Speak into the microphone.
7. **Press the STOP ■ button on the wireless controller to stop dubbing.**
 Audio device: Stop playback.

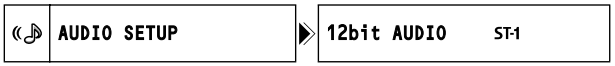
- ❍ Audio dubbing will stop if the tape has a blank section or a section recorded in LP mode or 16-bit mode.
- ❍ When using the built-in microphone, do not connect any devices to the MIC terminal.
- ❍ You cannot use the DV terminal for audio dubbing.
- ❍ If you add sound to a tape not recorded with this camcorder, sound quality may decrease.
- ❍ Sound quality may decrease when you add sound to the same scene for more than 3 times.

- ❍ You can check the picture on the LCD screen.
- ❍ When you connect an audio device, check the sound via built-in speaker.
- ❍ When you use a microphone, you can check the sound with headphones connected to the camcorder.
- ❍ Set the zero set memory at the end of the scene you wish to dub audio. The camcorder will automatically stop audio dubbing at that point.

Playing Back the Added Sound

You can select to play back Stereo 1 (original sound), Stereo 2 (added sound), or adjust the balance of both sounds.

MENU (📖 64)



1. **Set the camcorder to** PLAY(VCR)• **mode.**
2. **Press the MENU button and select [AUDIO SETUP]. Select [12bit AUDIO], select a setting and press the MENU button.**
 - STEREO1: Plays back the original sound.
 - STEREO2: Plays back the added sound.
 - MIX/FIXED: Plays back stereo 1 and stereo 2 in the same level.
 - MIX/VARI.: Plays back stereo 1 and stereo 2. The mix balance can be adjusted.
3. **If you have selected [MIX/VARI.], adjust the mix level: Press the MENU button and select [AUDIO SETUP]. Select [MIX BALANCE], adjust the balance with the SET dial and press the MENU button.**
 Turn the SET dial down to increase the volume of Stereo 1 and up to increase the volume of Stereo 2.

The camcorder resets to [STEREO1] when you turn the camcorder off. However, the mix balance is memorized by the camcorder.

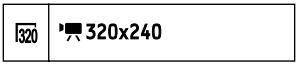
Recording from the Tape on a Memory Card

You can record movies or still images from a tape in the camcorder.

Recording a Movie from the Tape

The movie size can be selected.

FUNC.
(52)



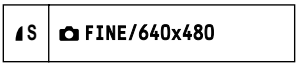
1. **Set the camcorder to** PLAY(VCR)• **mode.**
2. **Selecting the movie size:**
 Press the FUNC. button. Select the movie size symbol followed by a setting option and press the FUNC. menu.
3. **Press the start/stop button when the scene you wish to record appears.**
 Pressing the start/stop button again stops recording.

- The data code of the movie will reflect the date and time it has been recorded on the memory card.
- An image recorded from an image in widescreen mode will be vertically compressed.

Recording a Still Image from the Tape

The size of the still image recorded on the memory card will be 640 x 480. The still image quality can be selected.

FUNC.
(52)



1. **Set the camcorder to** PLAY(VCR)• **mode.**
2. **Selecting the still images quality:**
 Press the FUNC. button. Select the still image quality symbol followed by a setting option and press the FUNC. menu.
3. **Press the PHOTO button halfway when the scene you wish to record appears.**
 - The camcorder pauses playback. The remaining image capacity and other information appear.
 - When you press the PHOTO button on the wireless controller, recording starts immediately.
4. **Press the PHOTO button fully.**
 - The card access indicator flashes.
 - You can also record a still image by pressing the PHOTO button fully when the tape is in playback pause mode.

- An image recorded from an image in widescreen mode will be vertically compressed.
- The data code of the image will reflect the date and time it has been recorded on the memory card.

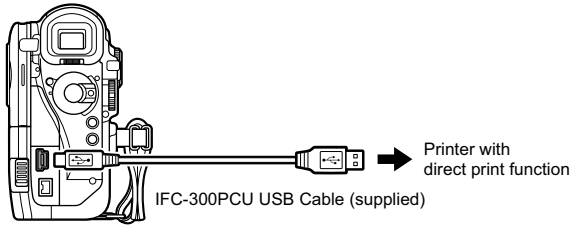
Printing Still Images

You can print still images by connecting the camcorder to a printer with direct print function. You can also use the print order settings for direct printing (📖 117).

Following printers can be connected to your camcorder:

Canon Printers	Direct Print compatible CP printer, PictBridge compatible SELPHY CP printers	DIRECT PRINT PictBridge
	Bubble Jet Direct compatible PIXMA printers, PictBridge compatible SELPHY DS/PIXMA printers	BUBBLE JET DIRECT PictBridge
PictBridge compliant non-Canon Printer		PictBridge

Connecting the Printer to the Camcorder



1. **Turn off the camcorder and insert a memory card that contains still images.**
2. **Turn on the printer.**
3. **Set the camcorder to** PLAY(VCR)•🎞 **mode.**
4. **Connect the camcorder to the printer using the cable.**
 - appears and changes to , or . Does not appear with movies, or still images that cannot be played back with the camcorder.
 - The (print/share) button lights up and the current print setting will be displayed for approx. 6 seconds.

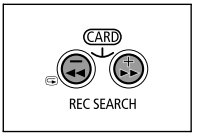
If continues to flash (for more than 1 minute) or if , or does not appear, the camcorder is not correctly connected to the printer. In such case, disconnect the cable from camcorder and printer, turn off camcorder and printer, turn both back on and reconnect the camcorder to the printer.

- ❍ A " " will display for images that cannot be printed.
- ❍ Refer to the instruction manual of each printer for information on which interface cable to use with the camcorder.
 The Canon CP-Printers CP-10 and CP-100 are supplied with two direct interface cables. Use the cable with the USB logo on the connector (DIF-100).
- ❍ We recommend powering the camcorder from a household power source.
- ❍ Refer also to the instruction manual of the respective printer.
- ❍ The print setting menu may differ slightly depending on the connected printer.

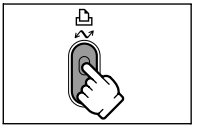
Printing with the 凸 (Print/Share) Button

You can print an image without changing the settings by simply pressing the 凸 (print/share) button.

1. **Select the still image you wish to print with the CARD +/– button.**



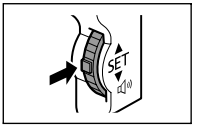
2. **Press the 凸 (print/share) button.**
 - Printing starts. The 凸 button flashes and glows steadily when printing is complete.
 - If you wish to continue printing, select another still image with the CARD +/– button.



Printing after Selecting the Print Settings

You can select the number of copies and other settings for printing. The setting options vary depending on your printer model.

1. **Press the SET dial.**
 - The print setting menu appears.
 - Depending on the printer, the message “BUSY.” may appear before the camcorder displays the print setting menu.



2. **Select the print settings (🕮 111).**
3. **Turn the SET dial to select [PRINT] and press the SET dial.**
 - Printing starts. The print setting menu disappears when printing is complete.
 - If you wish to continue printing, select another still image with the CARD +/– button.

❍ Images not recorded with this camcorder, uploaded from a computer, edited on a computer and images whose file names have been changed may not be printed correctly.
❍ Observe the following precautions during printing:
- Do not turn off the camcorder or the printer.
- Do not change the position of the TAPE/CARD switch.
- Do not detach the cable.
- Do not open the memory card cover or remove the memory card.

❍ If the message “BUSY.” does not disappear, disconnect the cable from camcorder and printer and reconnect the camcorder to the printer.

❍ **Cancel Printing**
Press the SET dial during printing. A confirmation dialog appears. Select [OK] and press the SET dial.
- Canon PIXMA/SELPHY DS printers and CP600: Printing stops even if it is incomplete and the paper is fed through.
- Canon CP printers (except for CP600): A print in progress cannot be stopped. Printing stops when the current print is finished, and the remaining prints are canceled.

❍ **Printing Errors**
If an error occurs during the printing process, an error message appears (🕮 131).
- Canon PIXMA/SELPHY DS printers and CP600: Resolve the error. When printing does not resume automatically, select [CONTINUE] and press the SET dial. If [CONTINUE] cannot be selected, select [STOP], press the SET dial and retry printing. Refer also to the printer manual for details.
- Canon CP printers (except for CP600): Select [STOP] or [RESUME] and press the SET dial. (The [RESUME] setting may not appear with some error messages. In that case, select [STOP].) Refer also to the printer manual for details.
- If the error still persists and printing does not restart, follow below procedure:
 1. Disconnect the cable.
 2. Turn the POWER switch of the camcorder to OFF and back to PLAY (VCR).
 3. Reconnect the cable.

❍ **When you have finished printing:**
1. Disconnect the cable from the camcorder and printer.
2. Turn off the camcorder.

Selecting the Print Settings

The procedure for selecting the number of copies is common to all printers. Other print setting procedures vary depending on your printer model. Check which icon appears in the upper left corner of the camcorder screen after connecting, and refer to the relevant pages accordingly.

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🕮 111 🕮 113 🕮 114

Selecting the Number of Copies

A maximum of 99 copies can be selected for one still image.

1. **In the print setting menu, turn the SET dial to select (COPIES) and press the SET dial.**



2. **Turn the SET dial to select the number of copies and press the SET dial.**



Setting the Print Style

PAPER	PAPER SIZE	Available paper sizes vary depending on the printer model.
	PAPER TYPE	PHOTO, FAST PHOTO, DEFAULT
	PAGE LAYOUT	BORDERLESS, BORDERED, 2-UP, 4-UP, 8-UP, 9-UP, 16-UP, DEFAULT
(date print)		ON, OFF, DEFAULT
(print effect)		ON, OFF, VIVID, NR, VIVID+NR, DEFAULT

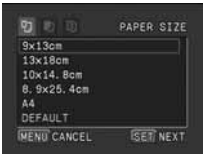
- Print setting options and [DEFAULT] settings vary depending on the printer model. For details, refer to the instruction manual of your printer.
- [BORDERED]: The image area remains relatively unchanged from the recorded image when it is printed. [BORDERLESS]: The center portion of the recorded image is printed at an enlarged size. The image's top, bottom and sides may be cropped slightly.
- [VIVID], [VIVID+NR] and [NR] can be selected with Canon PIXMA/SELPHY DS printers.
- When selecting [2-UP], [4-UP], [9-UP] or [16-UP] for [PAGE LAYOUT], set the [PAPER SIZE] to [10 x 14.8 cm]. You can print on a photo sticker sheet with a Canon PIXMA/SELPHY DS printer.
 When selecting [8-UP], set the [PAPER SIZE] to [CREDITCARD]. You can print on a photo sticker sheet with a Canon SELPHY CP printer.

Paper Settings

1. **In the print setting menu, turn the SET dial to select [PAPER] and press the SET dial.**



2. **Turn the SET dial to select the paper size and press the SET dial.**
 Select the paper size of the paper set in your printer.



3. **Turn the SET dial to select the paper type and press the SET dial.**
 Select the paper type of the paper set in your printer.

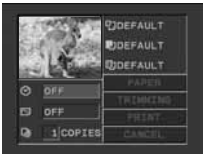


4. **Turn the SET dial to select a layout option and press the SET dial.**

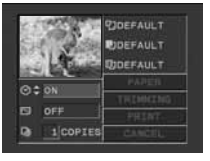


Including the Date in the Print

1. **In the print setting menu, turn the SET dial to select ⏲ (date) and press the SET dial.**



2. **Turn the SET dial to select a date print option and press the SET dial.**



Setting the Print Effect (Image Optimize)

This function uses the camcorder's recording information to optimize the image data, yielding high quality prints.

1. **In the print setting menu, turn the SET dial to select (print effect) and press the SET dial.**



2. **Turn the SET dial to select a setting and press the SET dial.**



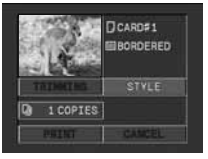
Setting the Print Style

PAPER		CARD #1*, CARD #2*, CARD #3*, LTR, A4 For details on paper type, refer to the Printer User Guide.
BORDERS	BORDERLESS	Prints right to the edges of the page.
	BORDERED	Prints with a border.

* Recommended paper size

- For still images in L size (2304x1736) the recommended paper size is up to A4.
- [BORDERED]: The image area remains relatively unchanged from the recorded image when it is printed. [BORDERLESS]: The center portion of the recorded image is printed at an enlarged size. The image's top, bottom and sides may be cropped slightly.

1. **In the print setting menu, turn the SET dial to select [STYLE] and press the SET dial.**



2. **Make sure that (PAPER) is selected and press the SET dial.**



3. **Turn the SET dial to select the paper size and press the SET dial.**
 - Select the paper size of the paper set in your printer.
 - Pressing the MENU button brings you back to the print settings menu.



4. **Turn the SET dial to select ▨ (BORDERS) and press the SET dial.**



5. **Turn the SET dial to select a borders option and press the SET dial.**
 Pressing the MENU button brings you back to the print settings menu.



Setting the Print Style

IMAGE	STANDARD	Prints 1 still image per page.
	MULTIPLE	Prints 8 copies of the same still image on one page.
BORDERS	BORDERLESS	Prints right to the edges of the page.
	BORDERED	Prints with a border.
DATE	ON	Prints with date.
	OFF	Prints without date.

- ❍ The [BORDERS] and [DATE] settings cannot be selected when [IMAGE] is set to [MULTIPLE].
- ❍ [BORDERED]: The image area remains relatively unchanged from the recorded image when it is printed. [BORDERLESS]/[MULTIPLE]: The center portion of the recorded image is printed at an enlarged size. The image's top, bottom and sides may be cropped slightly.
- ❍ [MULTIPLE] can only be selected when printing on card size paper.
- ❍ The date print function is not supported by the CP Printers CP-10 and CP-100.

1. **In the print setting menu, turn the SET dial to select [STYLE] and press the SET dial.**



Selecting the Image Style

2. **Make sure that (IMAGE) is selected and press the SET dial.**



3. **Turn the SET dial to select the image style and press the SET dial.**
 Pressing the MENU button brings you back to the print settings menu.



Selecting the Borders

2. **Turn the SET dial to select (BORDERS) and press the SET dial.**



3. **Turn the SET dial to select a borders option and press the SET dial.**
 Pressing the MENU button brings you back to the print settings menu.



Including the Date

2. **Turn the SET Dial to select (DATE) and press the SET dial.**



3. **Turn the SET dial to select a date option and press the SET dial.**
 Pressing the MENU button brings you back to the print settings menu.



Trimming Settings

Set the print style before you start with the trimming settings.

1. **In the print setting menu, turn the SET dial to select [TRIMMING] and press the SET dial.**
 The trimming frame appears.



2. **Change the size of the trimming frame.**
 - Move the zoom lever toward **T** to shrink the frame, and toward **W** to enlarge the frame.
 - To cancel the trimming settings, move the zoom lever toward **W** until the trimming frame disappears.



3. **Move the trimming frame.**
 - Turn the SET dial to move the frame. Press the SET dial to switch between the directions (up/down or right/left) and the orientation of the frame (vertical/horizontal).
 - Pressing the MENU button brings you back to the print settings menu.



❍ About the color of the trimming frame (Canon CP printers only):
- White: No trimming settings.
- Green: Recommended trimming size. (The trimming frame may not appear in green depending on the image size, paper size or borders settings.)
- Red: The image is magnified beyond recommended size. The image will be printed coarsely.

❍ The trimming setting applies only to one image.

❍ The trimming setting is canceled with the following operations:
- When you turn off the camcorder.
- When you disconnect the interface cable.
- When you expand the trimming frame beyond its maximum size.

Printing with Print Order Settings

You can select still images for printing and set the number of copies. These print order settings are compatible with the Digital Print Order Format (DPOF) standards and can be used for printing on DPOF compatible printers (📖 108). A maximum of 998 still images can be selected.

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Selecting Still Images for Printing (Print Order)

Do not connect a USB or DV cable to the camcorder while setting the print orders.

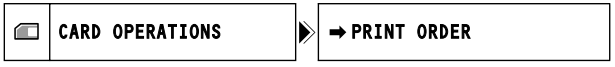
FUNC.
(📖 52)



1. **Set the camcorder to** PLAY(VCR)• **mode.**
2. **Press the FUNC. button.**
3. **Select [PRINT ORDER] and press the SET dial.**
4. **Select the number of copies and press the SET dial.**
5. **Press the FUNC. button.**
 To cancel the print order, set the number of copies to 0 in step 3.

Selecting in Index Screen Display

MENU
(📖 64)



1. **Set the camcorder to** PLAY(VCR)• **mode.**
2. **Move the zoom lever toward W.**
 - Up to 6 images appear.
 - Select the image you wish to print.
3. **Press the MENU button and select [CARD OPERATIONS]. Select [➡ PRINT ORDER].**
4. **Press the SET dial and set the number of copies with the SET dial.**
 " " appears on the image.
5. **Press the MENU button.**
 To cancel the print order, set the number of copies to 0.

Erasing All Print Orders

MENU (📖 64)

CARD OPERATIONS ▶ PRINT ORD. ALL ERASE

1. **Set the camcorder to** PLAY(VCR)• **mode.**
2. **Press the MENU button and select [CARD OPERATIONS].**
3. **Select [PRINT ORD. ALL ERASE].**
 "ERASE ALL PRINT ORDERS?", [NO] and [YES] appears.
4. **Select [YES].**
 All "" disappear.
5. **Press the MENU button.**

Printing

MENU (📖 64)

➡ PRINT

1. **Set the camcorder to** PLAY(VCR)• **mode.**
2. **Connect the printer to the camcorder (📖 108).**
3. **Press the MENU button and select [➡ PRINT].**
 - The print setting menu appears.
 - "SET PRINT ORDER" appears, when you connect a printer with direct print function and select [➡ PRINT] without having set the print order.
4. **Make sure that [PRINT] is selected and press the SET dial.**
 Printing starts. The print setting menu disappears when printing is complete.

- Depending on the connected printer, you can select style or paper settings before step 3.
- **Cancel Printing/Printing Errors (📖 110)**
- **Restarting Printing**
 Press the MENU button and select [➡ PRINT]. Select [RESUME] or [CONTINUE] in the print setting menu and press the SET dial. The remaining images will be printed.
 Printing cannot be restarted in the following cases:
 - When you change the print order settings.
 - When you delete a still image with print order settings.

Transferring Video Recordings to a Computer

You can transfer video recordings to the computer using a USB cable or an IEEE1394 (DV) cable. Before transferring video recordings from the tape to the computer, make sure to prepare the following:

To connect with the USB cable

- ❍ A computer running Windows XP (Service Pack 1 or Service Pack 2) equipped with a USB2.0 (Hi-Speed) Terminal
- ❍ A USB cable (supplied)
- ❍ Canon USB Video Driver (the driver is included with the supplied DIGITAL VIDEO SOLUTION DISK)
- ❍ Windows Movie Maker 2 (Version 2.0.3312.0 with SP1, 2.1.4026.0 with SP2)

To connect with an IEEE1394 (DV) cable

- ❍ A computer equipped with an IEEE1394 (DV) terminal or an IEEE1394 (DV) capturing board.
- ❍ A DV cable (sold separately)
- ❍ The appropriate driver

 A driver is included with Windows operating systems later than Windows 98 Second Edition and Mac operating systems later than Mac OS 9. The driver is installed automatically when you connect the camcorder to the computer.
- ❍ Video editing software

 You can use any IEEE1394 compatible video editing software that came bundled with your computer or video capturing board. You can also use the video editing software included with your operating system (Windows Movie Maker with Windows XP/ Windows ME; iMovie with Mac OS 9 and later).

Preparations

1. **Start your computer.**

 If you wish to connect the camcorder using the USB cable, you need to install the Canon USB Video Driver. For details, refer to the *Digital Video Software Instruction Manual*.
2. **Set the camcorder to** PLAY(VCR)• **mode.**
3. **When using a USB cable:**

 Press the MENU button and select [VCR SETUP]. Select [AV➡ DV/], set it to [OFF] and press the MENU button.
4. **Connect the camcorder to the computer using a USB cable or DV cable.**

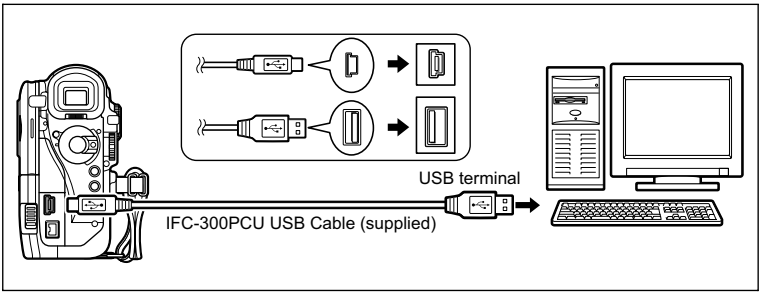
 This completes the preparations and you can start transferring the video recordings.
5. **Start the software.**

 Refer to the software instruction manual.

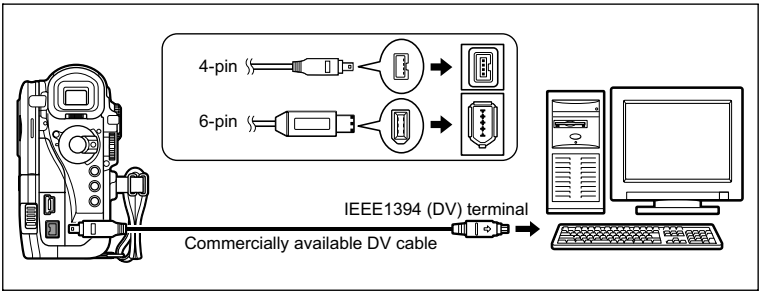
Connection Diagram

Check the type and orientation of the DV or USB terminal and make sure you connect the DV cable or USB cable properly.

① **Using a USB cable**



② **Using an IEEE1394 (DV) cable**



- ❍ Operation may not work correctly depending on the software and the specifications/settings of your computer.
- ❍ If the computer freezes while you have connected the camcorder, disconnect and reconnect the DV cable. If the problem persists, disconnect the interface cable, turn off camcorder and computer, turn camcorder and computer back on and reconnect them.
- ❍ Before connecting the camcorder to the computer using a DV cable make sure that camcorder and computer are not connected with a USB cable, and that no other 1394 device is connected to the computer.
- ❍ Make sure that camcorder and computer are not connected with a DV cable before connecting the camcorder to the computer using the USB cable. Otherwise, the computer may not operate properly.
- ❍ Depending on the video editing software you use, you may need to set the power switch of the camcorder to a mode other than PLAY. Refer also to the instruction manual of the editing software.

- ❍ We recommend powering the camcorder from a household power source while it is connected to the computer.
- ❍ Refer also to the instruction manual of the computer.
- ❍ The programs ZoomBrowser EX and Image Browser included with the supplied CD are intended for use only with images recorded on the memory card.

Transferring Memory Card Images to a Computer (Direct Transfer)

With the supplied USB cable and Digital Video Software, you can transfer images to the computer by simply pressing the 🖧 (print/share) button.

Preparations

The first time you connect the camcorder to the computer, you need to install the software and set the auto-launch setting. From the second time on, you only need to connect the camcorder to the computer to transfer images.

1. **Install the supplied Digital Video Software.**
 See *Installing the Software* in the *Digital Video Software Instruction Manual*.
2. **Set the camcorder to** PLAY(VCR)• **mode.**
3. **Connect the camcorder to the computer using the USB cable.**
 See *Connecting the Camcorder to a Computer* in the *Digital Video Software Instruction Manual*.
4. **Set the auto-launch setting.**
 - See *StartingCameraWindow* in the *Digital Video Software Instruction Manual*.
 - The direct transfer menu appears on the camcorder screen and the 🖧 button lights up.

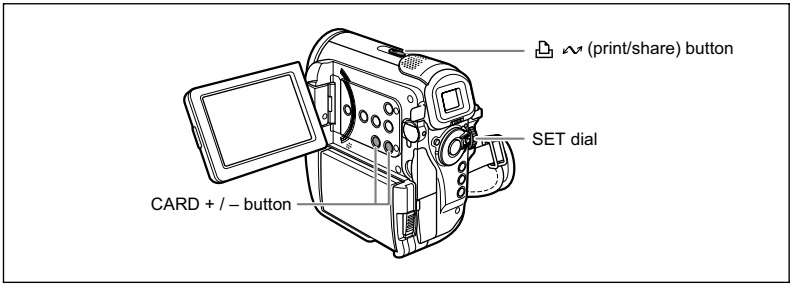
- ❍ Do not disconnect the USB cable, open the memory card cover, remove the memory card, change the position of the TAPE/CARD switch or turn off the camcorder and computer while data is being transferred to the computer (while the camcorder's card access indicator is flashing). Doing so may damage the memory card's data.
- ❍ Operation may not work correctly depending on the software and the specifications/settings of your computer.
- ❍ The image files on your memory card and the image files saved on the hard disk drive of your computer are valuable, original data files. If you wish to use image files on your computer, make copies of them first, and use the copied file, retaining the original.
- ❍ Make sure that camcorder and computer are not connected with a DV cable before connecting the camcorder to the computer using the USB cable. Otherwise, the computer may not operate properly.

- ❍ We recommend powering the camcorder from a household power source while it is connected to the computer.
- ❍ Refer also to the computer instruction manual.
- ❍ Users of Windows XP and Mac OS X:
 Your camcorder is equipped with the standard Picture Transfer Protocol (PTP) allowing you to download still images (JPEG only) by simply connecting the camcorder to a computer via USB cable without installing the software from the DIGITAL VIDEO SOLUTION DISK.

Transferring Images

To transfer images with transfer order, you need to set the transfer orders (📖 124).

ALL IMAGES...	Transfers all images to the computer.
NEW IMAGES...	Transfers only those images that have not yet been transferred to the computer.
TRANSFER ORDERS...	Transfers images with transfer orders to the computer.
SELECT & TRANSFER...	Allows you to select an image and transfers the selected image to the computer.
WALLPAPER...	Allows you to select a still image and transfers the selected image to the computer as wallpaper.



1. **Turn the SET dial to select a setting option.**
2. **Press the (print/share) button.**
 [ALL IMAGES] [NEW IMAGES] [TRANSFER ORDERS]:
 The images are transferred to the computer and displayed in the screen.
 The camcorder displays the transfer menu when transfer is complete.
 To cancel transfer, turn the SET dial to select [CANCEL] and press the SET dial, or press the MENU button.



3. **Select the image you wish to transfer with the CARD+/– button.**
4. **Press the (print/share) button.**
 - [SELECT & TRANSFER]: The selected image is transferred to the computer and displayed in the screen.
 To continue transferring, select another image with the CARD+/– button.
 - [WALLPAPER]: The selected image is transferred to the computer and displayed on the desktop.
 - Pressing the MENU button brings you back to the transfer menu.

❍ You can press the SET dial in place of the (print/share) button. With [ALL IMAGES], [NEW IMAGES] or [TRANSFER ORDERS], a confirmation message appears. Turn the SET dial to select [OK] and press the SET dial.
❍ When transferring with the (print/share) button, the camcorder retains the transfer setting even if you change the position of the POWER switch.

❍ When the camcorder is connected to the computer and screen to select images displays, press the MENU button. The transfer menu will display.
❍ When the protect switch of the SD Memory Card is activated during image transfer, the images will not be marked as “already transferred”, and will be transferred again when you select [NEW IMAGES] later.

Selecting Images for Transfer (Transfer Order)

You can select images for transfer to the computer. These transfer settings are compatible with the Digital Print Order Format (DPOF) standards. A maximum of 998 images can be selected.

Do not connect a USB or DV cable to the camcorder while setting the transfer orders.

FUNC.
(52)

TRANSFER ORDER

1. **Set the camcorder to** PLAY(VCR)• **mode.**
2. **Press the FUNC. button.**
3. **Select [TRANSFER ORDER] followed by [ON] and press the SET dial.**
4. **Press the FUNC. button.**
 To cancel the transfer order, select [OFF] in step 3.

Selecting in Index Screen Display

MENU
(64)

CARD OPERATIONS ➡ TRANSFER ORDER

1. **Set the camcorder to** PLAY(VCR)• **mode.**
2. **Move the zoom lever toward W.**
 Up to 6 images appear.
3. **Press the MENU button and select [CARD OPERATIONS]. Select [➡ TRANSFER ORDER].**
4. **Press the SET dial on the image you wish to transfer.**
 " " appears on the image.
5. **Press the MENU button.**
 To cancel the transfer order, press the SET dial again.

Erasing All Transfer Orders

MENU
(64)

CARD OPERATIONS ➡ TRANS.ORD. ALL ERASE

1. **Set the camcorder to** PLAY(VCR)• **mode.**
2. **Press the MENU button and select [CARD OPERATIONS].**
3. **SELECT [TRANS.ORD. ALL ERASE].**
 "ERASE ALL TRANSFER ORDERS?", [NO] and [YES] appears.
4. **Select [YES].**
 All " " disappear.
5. **Press the MENU button.**

Using the NETWORK Mode (DV Messenger Version 2)

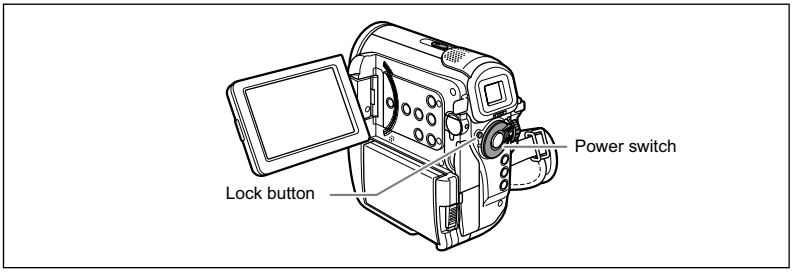
With the Windows XP dedicated DV Network Software (DV Messenger), you can operate your camcorder from the computer, perform videoconferences using the camcorder or remotely access the camcorder at home using the Internet.

Download the DV Messenger and the DV Network Software Instruction Manual from the following homepage. Refer to the *DV Network Software Instruction Manual* for details.

www.canondv.com

www.canon.ca

www.canon-asia.com



Preparation for Using DV Messenger

1. **Start the computer and install DV Messenger.**
 If you wish to connect the camcorder using a USB cable, you also need to install the Canon USB Video Driver (The required USB Video Driver will be downloaded together with the DV Messenger).
2. **Connect the power adapter to the camcorder.**
3. **Press the lock button and turn the POWER switch to NETWORK.**
4. **Connect the camcorder to the computer using a USB cable or DV cable.**
 "NETWORK MODE" appears on the camcorder screen.
5. **Start DV Messenger.**

Make sure that camcorder and computer are not connected with a DV cable before connecting the camcorder to the computer using the USB cable. Otherwise, the computer may not operate properly.

- ❍ In NETWORK mode, only the following functions can be used from the camcorder:
 - When the DV Messenger [CAMERA] control panel is displayed: Zoom and focus
 - When the DV Messenger [VCR] control panel is displayed: Volume adjustment of the built-in speaker
- ❍ Only when the DV Messenger [CAMERA] control panel is displayed the Zoom can be operated from the wireless controller. All other operations cannot be performed using the wireless controller.

Troubleshooting

If you have a problem with your camcorder, refer to this checklist. Consult your dealer or a Canon Service Center if the problem persists.

Power Source

Problem	Solution	🕮
Camcorder will not turn on.	Battery pack is exhausted. Replace or charge the battery pack.	17
	Attach the battery pack correctly.	17
The camcorder switches off by itself.	Battery pack is exhausted. Replace or charge the battery pack.	17
	Power save function has been activated. Turn on the camcorder.	28
Cassette compartment will not open.	Battery pack is exhausted. Replace or charge the battery pack.	17
	Open the cassette compartment cover fully.	20
Cassette compartment stopped during loading/ unloading.	Battery pack is exhausted. Replace or charge the battery pack.	17
LCD/viewfinder switches on and off.	Battery pack is exhausted. Replace or charge the battery pack.	17
Battery pack will not charge.	Charge the battery pack in temperatures between 32 °F and 104 °F (0 °C and 40 °C).	–
	Battery packs become hot with use and may not charge. Wait until the battery pack temperature is below 104 °F (40 °C) and retry charging.	–
	The battery pack is damaged. Use a different battery pack.	–

Recording/Playback

Problem	Solution	🕮
Buttons will not work.	Turn on the camcorder.	28
	Load a cassette.	20
Camcorder will not focus.	Autofocus does not work on that subject. Focus manually.	48
	Adjust the viewfinder with the dioptric adjustment lever.	22
	Lens is dirty. Clean the lens.	138
Viewfinder picture is blurred.	Adjust the viewfinder with the dioptric adjustment lever.	22
A vertical light bar appears on the screen.	Bright light in a dark scene may cause a vertical light bar (smear) to appear. This is not a malfunction.	–
Abnormal characters appear on the screen. The camcorder does not operate properly.	This camcorder uses a microcomputer. External noise or static electricity may cause abnormal characters to appear on the screen. In such case, disconnect the power source and reconnect it after a short time. If the problem still persists, disconnect the power source and press the RESET button with a pointed item. Pressing the RESET button resets all settings.	11
"📼" flashes on the screen.	Load a cassette.	20
"🔋" flashes on the screen.	Battery pack is exhausted. Replace or charge the battery pack.	17
"💧" flashes on the screen.	Condensation is detected. See reference page.	129
"ϟ" flashes red on the screen.	The camcorder malfunctions. Consult a Canon Service Center.	–

Problem	Solution	🕮
“REMOVE THE CASSETTE” appears on the screen.	Unload and reload the cassette.	20
“SET THE TIME ZONE, DATE AND TIME” appears on the screen.	Set the time zone, date and time.	26
	Recharge the built-in lithium battery and set the time zone, date and time.	135
The wireless controller will not work.	Set [WL.REMOTE] to [ON].	69
	The battery of the wireless controller is exhausted. Replace the battery.	23

Tape operation-Recording

Problem	Solution	🕮
Image will not appear on the screen.	Set the camcorder to CAMERA• mode.	28
Pressing the start/stop button will not start recording.	Set the camcorder to CAMERA• mode.	28
	Load a cassette.	20
	Tape reached the end (“ **END**” flashes on the screen). Rewind the tape or replace the cassette.	20
	Cassette is protected (“ ” flashes on the screen). Change the position of the protect switch.	134
Sound is distorted.	When recording near loud sounds (such as fireworks, drums or concerts), sound may become distorted. Sound may be recorded properly when you set [MIC ATT] to [ON] in the menu, or when you adjust the audio recording level manually.	71
Sound is recorded in a lower level than the actual level.	When recording near loud sounds (such as fireworks, drums or concerts), sound may be recorded not in the actual sound level. Sound may be recorded properly when you adjust the audio recording level manually.	71
	Set [MIC ATT] to [OFF] in the menu.	67

Tape operation-Playback

Problem	Solution	🕮
Pressing the playback button does not start playback.	Set the camcorder to PLAY(VCR)• mode.	35
	Load a cassette.	20
	Tape reached the end (“ **END**” flashes on the screen). Rewind the tape.	35
Image will not appear on the TV screen.	Set [AV➡ DV/] to [OFF].	66
Tape is running, but image will not appear on the TV screen.	TV/VIDEO selector on the TV is not set to VIDEO. Set the selector to VIDEO.	39
	Video heads are dirty. Clean the video heads.	137
	You attempted to play back or dub copyright protected tape. Stop playback/dubbing.	–
No sound from the built-in speaker.	Speaker volume is turned off. Adjust the volume with the SET dial.	38
The tape stops during playback pause.	When playback pause continues for more than 4 minutes 30 seconds during playback or audio dubbing, the camcorder shuts off to protect tape and video heads. Playback the tape again and press the ▶/❚❚ pause button.	–

Memory Card Operation

Problem	Solution	🕮
Memory card cannot be inserted.	Memory card was not facing the correct direction. Turn the memory card over and reinsert it.	21
Memory card cannot be recorded.	Insert a memory card.	21
	Memory card is full. Replace the memory card or erase images.	95
	Memory card is not formatted. Format the memory card.	96
	Image number reached maximum value. Set [FILE NOS.] to [RESET] and insert a new memory card.	69
	SD Memory Card is protected. Change the position of the protect switch.	21
Memory card cannot be played back.	Set the camcorder to PLAY(VCR)• mode.	37
	Insert a memory card.	21
Image cannot be erased.	Image is protected. Cancel the protection.	94
	SD memory card is protected. Change the position of the protect switch.	21
" " flashes red.	Card error occurred. Turn off the camcorder. Remove and reinsert the memory card. Format the memory card if flashing persists.	96

Printing

Problem	Solution	🕮
The printer is not operating even though camcorder and printer are correctly connected.	1. Set the camcorder to PLAY(VCR)• mode. 2. Disconnect and reconnect the USB cable. 3. Turn off the printer and turn it back on.	–

Editing

Problem	Solution	🕮
Dubbing via the camcorder's DV terminal does not work.	Set [AV➡ DV/] to [OFF].	66
	Wrong signal format. Dubbing may work via the AV terminal. Refer also to the instruction manual of the connected device.	–

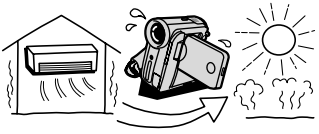
Condensation

Moving the camcorder rapidly between hot and cold temperature may cause condensation (water droplets) to form on its internal surfaces. Stop using the camcorder if condensation is detected. Continued use may damage the camcorder.

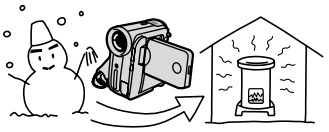
E

Condensation may form in the following cases:

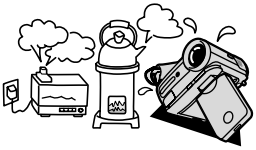
When the camcorder is moved from an air-conditioned room to warm, humid place



When the camcorder is moved from a cold place to a warm room



When the camcorder is left in a humid room



When a cold room is heated rapidly



How to avoid condensation:

❍ Unload the cassette, place the camcorder in an airtight plastic bag and let it adjust to temperature changes slowly before removing it from the bag.

When condensation is detected:

❍ The camcorder stops operating and the warning message “CONDENSATION HAS BEEN DETECTED” appears for approx. 4 seconds and “ ” starts flashing.

❍ If a cassette is loaded, the warning messages “CONDENSATION HAS BEEN DETECTED” and “REMOVE THE CASSETTE” appear and “ ” starts flashing. Remove the cassette immediately and leave the cassette compartment open. Leaving the cassette in the camcorder may damage the tape.

❍ A cassette cannot be loaded when condensation is detected.

Resuming use:

❍ It takes about 1 hour until the water droplets evaporate. After the condensation warning stops flashing, wait for 1 more hour before resuming use.

List of Messages

Message	Explanation	🕮
SET THE TIME ZONE, DATE AND TIME	You have not set the time zone, date and time. This message appears each time you turn the power on until you set the time zone, date and time.	26
CHANGE THE BATTERY PACK	Battery pack is exhausted. Replace or charge the battery pack.	17
THE TAPE IS SET FOR ERASURE PREVENTION	Cassette is protected. Replace the cassette or change the position of the protect switch.	134
REMOVE THE CASSETTE	Camcorder stopped operating to protect the tape. Unload and reload the cassette.	20
CHECK THE INPUT	DV cable or USB cable is not connected, or the connected digital device is turned off.	100 119
CONDENSATION HAS BEEN DETECTED	Condensation has been detected in the camcorder.	129
CONDENSATION HAS BEEN DETECTED REMOVE THE CASSETTE	Condensation has been detected in the camcorder. Unload the cassette.	129
TAPE END	Tape reached the end. Rewind the tape or replace the cassette.	–
CHECK THE CASSETTE [WRONG FORMAT]	You attempted to perform audio dubbing on a tape recorded in HDV format.	–
WRONG FORMAT PLAYBACK NOT POSSIBLE	You attempted to play back a tape recorded in HDV format.	–
CHECK THE CASSETTE [REC MODE]	You attempted to perform audio dubbing on a tape recorded in a mode other than the SP mode.	104
CHECK THE CASSETTE [AUDIO MODE]	You attempted to perform audio dubbing on a tape recorded in 16-bit or 12-bit 4-channel sound.	104
CHECK THE CASSETTE [BLANK]	You attempted to perform audio dubbing on a tape with a blank section.	104
HEADS DIRTY, USE CLEANING CASSETTE	Video heads are dirty. Clean the video heads.	137
COPYRIGHT PROTECTED PLAYBACK IS RESTRICTED	You attempted to play back a copyright protected tape.	101
COPYRIGHT PROTECTED DUBBING RESTRICTED	You attempted to dub a copyright protected tape. May also appear when an anomalous signal is received during analog line-in recording.	101

Memory Card Related Messages

Message	Explanation	🕮
NO CARD	Memory card not is inserted into the camcorder.	21
THE CARD IS SET FOR ERASURE PREVENTION	SD Memory Card is set for erasure prevention. Replace the card or change the position of the protect switch.	21
NO IMAGES	No images are recorded on the memory card.	–
CARD ERROR	A memory card error occurred. The camcorder cannot record or play back the image. The error may be temporary. If the message disappears after 4 seconds an "▭" flashes red, turn the camcorder off, remove the card and reinsert the card. If "▭" changes to green, you can continue recording/playback.	–

Message	Explanation	🕮
CARD FULL	No remaining capacity on the memory card. Replace with another card or erase images.	–
NAMING ERROR	The folder and image numbers have reached their maximum value.	69
UNIDENTIFIABLE IMAGE	Image is not recorded with JPEG compression, or with a compression not compatible with the camcorder, or the image file is corrupted.	–
PRINT ORDER ERROR	You attempted to set more than 998 still images in the print order.	–
TRANSFER ORDER ERROR	You attempted to set more than 998 transfer orders.	124
CANNOT TRANSFER!	You attempted to transfer a movie file as wallpaper.	122
THIS IMAGE CANNOT BE RECORDED	Some analog images cannot be recorded on the memory card depending on the signal.	–
NOW CREATING START-UP IMAGE	The start-up image is being made.	–
THIS IMAGE CANNOT BE USED AS START-UP IMAGE	You attempted to use an image recorded with another camcorder, recorded with a compression not compatible with this camcorder, or that has been edited on a computer.	75
TOO MANY STILL IMAGES DISCONNECT USB CABLE	Disconnect the USB cable, decrease the number of still images on the memory card to less than 1800. If a dialog appeared on the computer screen, close it. Reconnect the USB cable.	–

Direct Print Related Messages

Following messages may appear on the camcorder screen. Refer also to the printer manual for remedies corresponding to the error messages.

Canon PIXMA/SELPHY DS printer:

❍ Make sure to refer to the printer's manual in the following cases:
- When the error indicator on the printer flashes.
- Printers equipped with an operation panel and printers that can be connected to a TV: When an error number or error message is displayed on the panel or TV monitor.

❍ If the error persists, consult your dealer or a Canon Service Center listed in the Contact List provided with the printer or the printer's manual.

Message	Explanation
PAPER ERROR	There is a problem with the paper. Wrong paper size is inserted, the ink cannot be used with the selected paper or paper output tray is open.
NO PAPER	Paper is not correctly inserted or there is no paper. If the printer is equipped with a photo paper cassette, specify the paper feed location using the Paper Feed switch.
PAPER JAM	The paper jammed during printing. Select [STOP] to cancel printing. After removing the paper, set some paper again and press the resume button on the printer.
PAPER HAS BEEN CHANGED	Paper size has been changed between print setting and start of printing.
MEDIA TYPE ERROR	You attempted to use a paper size/type that is not supported by the printer.
INCOMPATIBLE PAPER SIZE	You attempted to print on paper that cannot be used with the camcorder.
INK ERROR	There is a problem with the ink.

Message	Explanation
NO INK	The ink cartridge is not inserted or is out of ink.
LOW INK LEVEL	The ink cartridge needs to be replaced soon. Select [CONTINUE] to restart printing.
INK CASSETTE ERROR	There is a problem with the ink cassette.
PAPER AND INK DO NOT MATCH	The ink cannot be used with the selected paper type.
WASTE TANK FULL	Waste tank is full. Select [CONTINUE] to restart printing. Consult your dealer or a Canon Service Center listed in the Contact List provided with the printer or the printer manual to replace the waste tank (waste ink absorber).
FILE ERROR	You attempted to print an image that was recorded with another camcorder, with a different compression, or was edited on a computer.
CANNOT PRINT!	You attempted to print an image that was recorded with another camcorder, with a different compression, or was edited on a computer.
COULD NOT PRINT X IMAGES	You attempted to use the print order settings to print X images that were recorded with another camcorder, with a different compression or were edited on a computer.
SET PRINT ORDER	No still images on the memory card have been marked with a print order.
CANNOT TRIM	You attempted to trim an image that was recorded with another camcorder.
READJUST TRIMMING	You changed the print style after you set the trimming settings.
PRINTER ERROR	Cancel printing. Turn off the printer and turn it back on. Check the printer status.
PRINT ERROR	Cancel printing, disconnect the USB cable and turn off the printer. After a while, turn the printer back on and reconnect the USB cable. Check the printer status. When you are printing using the button, check the print settings.
HARDWARE ERROR	Cancel printing. Turn off the printer and turn it back on. Check the printer status. If the printer is equipped with a battery, it might be exhausted. In such case, turn off the printer, replace the battery and turn it back on.
RECHARGE THE PRINTER BATTERY	The printer battery is depleted.
COMMUNICATION ERROR	The printer is experiencing a data transmission error. Cancel printing, disconnect the USB cable and turn off the printer. After a while, turn the printer back on and reconnect the USB cable. When you are printing using the button, check the print settings. Or, you attempted to print from a memory card that contains a large number of images. Reduce the number of images.
CHECK PRINT SETTINGS	The print setting cannot be used for printing with the button.
PRINTER IN USE	The printer is in use. Check the printer status.
PRINTER WARMING UP	Printer is warming up. If the message does not disappear after a few seconds, check the printer status.
PAPER LEVER ERROR	Paper lever error occurred. Adjust the paper selection lever to the proper position.
PRINTER COVER OPEN	Close the printer cover securely.
NO PRINTHEAD	No print head is installed in the printer or print head is defect.

Handling Precautions

Camcorder

- ❍ Do not carry the camcorder by the LCD panel or viewfinder.
- ❍ Do not leave the camcorder in places subject to high temperatures, such as a sun-heated car, and high humidity.
- ❍ Do not use the camcorder near strong electric or magnetic fields such as above TVs, near plasma TVs or mobile phones.
- ❍ Do not point the lens or viewfinder at strong light sources. Do not leave the camcorder pointed at a bright subject.
- ❍ Do not use the camcorder in dusty or sandy places. Dust or sand getting inside the cassette or camcorder may cause damage. Dust and sand can also damage the lens. Attach the lens cap after use.
- ❍ The camcorder is not waterproof. Water, mud or salt getting inside the cassette or camcorder may cause damage.
- ❍ Be careful of heat generated by lighting equipment.
- ❍ Do not disassemble the camcorder. If the camcorder does not function properly, consult qualified service personnel.
- ❍ Handle the camcorder with care. Do not subject the camcorder to shocks or vibration as this may cause damage.
- ❍ Avoid sudden changes in temperature. Moving the camcorder rapidly between hot and cold temperatures may cause condensation to form on its internal surfaces (🕮 129).

Battery Pack

DANGER!
Treat the battery pack with care.

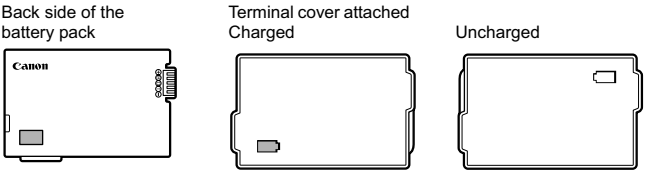
- Keep it away from fire (or it might explode).
- Do not expose the battery pack to temperature higher than 140 °F (60 °C). Do not leave it near a heater or inside a car in hot weather.
- Do not try to disassemble or modify it.
- Do not drop or knock it.
- Do not get it wet.

- ❍ Charged battery packs continue to discharge naturally. Therefore, charge them on the day of use, or the day before, to ensure a full charge.
- ❍ Attach the terminal cover whenever a battery pack is not in use. Contact to metallic objects may cause a short circuit and damage the battery pack.
- ❍ Dirty terminals may cause a poor contact between the battery pack and the camcorder. Wipe the terminals with a soft cloth.
- ❍ Since storing a charged battery pack for a long time (about 1 year) can shorten its lifecycle or affect performance, we recommend to discharge the battery pack fully and to store it in a dry place at temperatures no higher than 86 °F (30 °C). If you do not use the battery pack for long periods, charge and discharge it fully at least once a year. If you have more than 1 battery pack, perform these precautions at the same time for all battery packs.

❍ Although the battery pack's operating temperature range is from 32 °F to 104 °F (0 °C to 40 °C), the optimal range is from 50 °F to 86 °F (10 °C to 30 °C). At cold temperatures, performance will temporarily decline. Warm it in your pocket before use.
❍ Replace the battery pack if the usable time after full charge diminishes substantially at normal temperatures.

About the battery terminal cover

The battery terminal cover has a [▭]-shaped hole. This is useful when you wish to differentiate between charged and uncharged battery packs. For example, with charged battery packs, attach the terminal cover so that the [▭]-shaped hole shows the silver label.



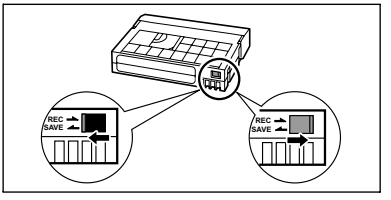
Cassette

❍ Rewind tapes after use. If the tape becomes slack and damaged, it may cause picture and sound distortion.
❍ Return cassettes in the case and store them upright.
❍ Do not leave the cassette in the camcorder after use.
❍ Do not use spliced tapes or nonstandard cassettes as they may damage the camcorder.
❍ Do not use tapes that have been jammed as video heads may become dirty.
❍ Do not insert anything into the small holes of the cassette, or cover them with cellophane tape.
❍ Handle cassettes with care. Do not drop or subject them to severe impact as this may damage the cassettes.
❍ Rewind tapes from time to time if they are stored for a long time.
❍ With cassettes equipped with a memory function, metal plated terminals may become dirty with use. Clean the terminals with a cotton swab after about 10 times of loading/unloading. The memory function is not supported by the camcorder.

Protecting Tapes from Accidental Erasure

To protect your recordings from accidental erasure, slide the tab on the cassette to SAVE or ERASE OFF.

If you wish to record on that cassette, change the position of the tab.



Memory Card

❍ Format new memory cards with the camcorder. Memory cards formatted with other devices such as a computer may not operate correctly.
❍ We recommend saving backups of memory card images on your computer's hard drive or other external memory device. Image data may be corrupted or lost due to memory card defects or exposure to static electricity. Canon Inc. makes no warranties for corrupted or lost data.
❍ Do not turn off the camcorder, disconnect the power source, open the memory card cover or remove the memory card while the card access indicator is flashing.
❍ Do not use memory cards in places subject to strong magnetic fields.
❍ Do not leave memory cards in places subject to high humidity and high temperature.
❍ Do not disassemble memory cards.
❍ Do not bend, drop, or subject memory cards to shocks and do not expose them to water.
❍ Moving a memory card rapidly between hot and cold temperatures may cause condensation to form on its external and internal surfaces. If condensation forms on the card, put it aside until the droplets have evaporated completely.
❍ Do not touch or expose the terminals to dust or dirt.
❍ Check the direction before inserting the memory card. Forcing a memory card backwards into the slot may damage the memory card or the camcorder.
❍ Do not remove the label from the memory card, or affix other labels on the memory card.

Lithium Button Battery

WARNING!
- The battery used in this device may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 212 °F (100 °C) or incinerate the battery.
- Replace the battery with a CR2025 made by Panasonic, Hitachi Maxell, Sony, Sanyo, or with Duracell2025. Use of other batteries may present a risk of fire or explosion.

❍ Do not pick up the battery using tweezers or other metal tools as this will cause a short circuit.
❍ Wipe the battery with a clean dry cloth to ensure proper contact.
❍ Keep the battery out of reach of children. If it is swallowed, seek medical assistance immediately. The battery case may break and the battery fluids may damage stomach and intestines.
❍ Do not disassemble, heat or immerse the battery in water to avoid the risk of explosion.

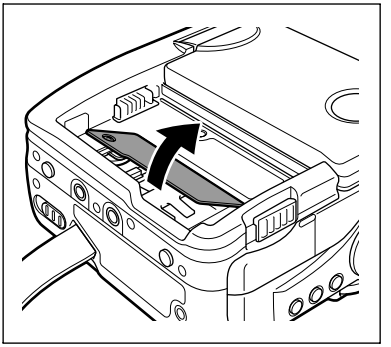
Built-in Rechargeable Lithium Battery

The camcorder has a built-in rechargeable lithium battery to retain date/time and other settings. The built-in lithium battery is recharged while you use the camcorder, however, it discharges when the usage time is short, and will become totally discharged when you do not use the camcorder for about 3 months. In such case, recharge the built-in lithium battery: Connect the power adapter to the camcorder and leave it connected for 24 hours with the POWER switch set to OFF.

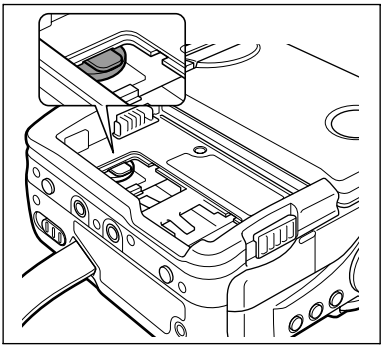
Recycling the Built-in Rechargeable Lithium Battery

If you should dispose of your camcorder, first remove the built-in rechargeable lithium battery for recycling according to the recycling system of your country.

1. **Loosen the screw using a screwdriver and remove the cover.**



2. **Using a pair of pliers grab the green circuit board piece covering the battery. Twist it slightly until you cut it off.**
3. **Firmly hold the battery with the pliers. Twist it repeatedly to detach it from the board.**



- ❍ Do not remove the cover for any other purpose than removing the battery for recycling when disposing the camcorder.
- ❍ When you have removed the battery, keep it out of reach of children. If it is swallowed, seek medical assistance immediately. The battery case may break and the battery fluids may damage the stomach and intestines.
- ❍ When removing the built-in lithium battery, disconnect power to the camcorder.

Cleaning the Video Heads

When the message “HEADS DIRTY, USE CLEANING CASSETTE” appears, or when the playback picture becomes distorted, the video heads need to be cleaned.

To maintain the best picture quality, we recommend cleaning the video heads frequently with the Canon DVM-CL Digital Video Head Cleaning Cassette or a commercially available dry cleaning cassette.





- ❍ Do not use wet type cleaning cassettes as this may damage the camcorder.
- ❍ Tapes already recorded with dirty video heads may not be played back correctly even when you clean the video heads.

Maintenance/Others

Storage

- ❍ If you do not intend to use the camcorder for a long time, store it in a place free of dust, in low humidity, and at temperatures not higher than 86 °F (30 °C).
- ❍ After storage, check the functions of your camcorder to make sure that the camcorder is still working properly.

Cleaning

Camcorder Body and Lens

- ❍ Use a soft, dry cloth to clean the camcorder body and lens. Never use chemically treated cloth or volatile solvents such as paint thinner.

LCD Screen

- ❍ Clean the LCD screen using a commercially available cleaning cloth for glasses.
- ❍ Condensation may form on the surface of the screen when the temperature changes suddenly. Wipe it with a soft dry cloth.

Viewfinder

- ❍ Clean the viewfinder screen using blower brush or a commercially available cleaning cloth for glasses.

Using the Camcorder Abroad

Power Sources

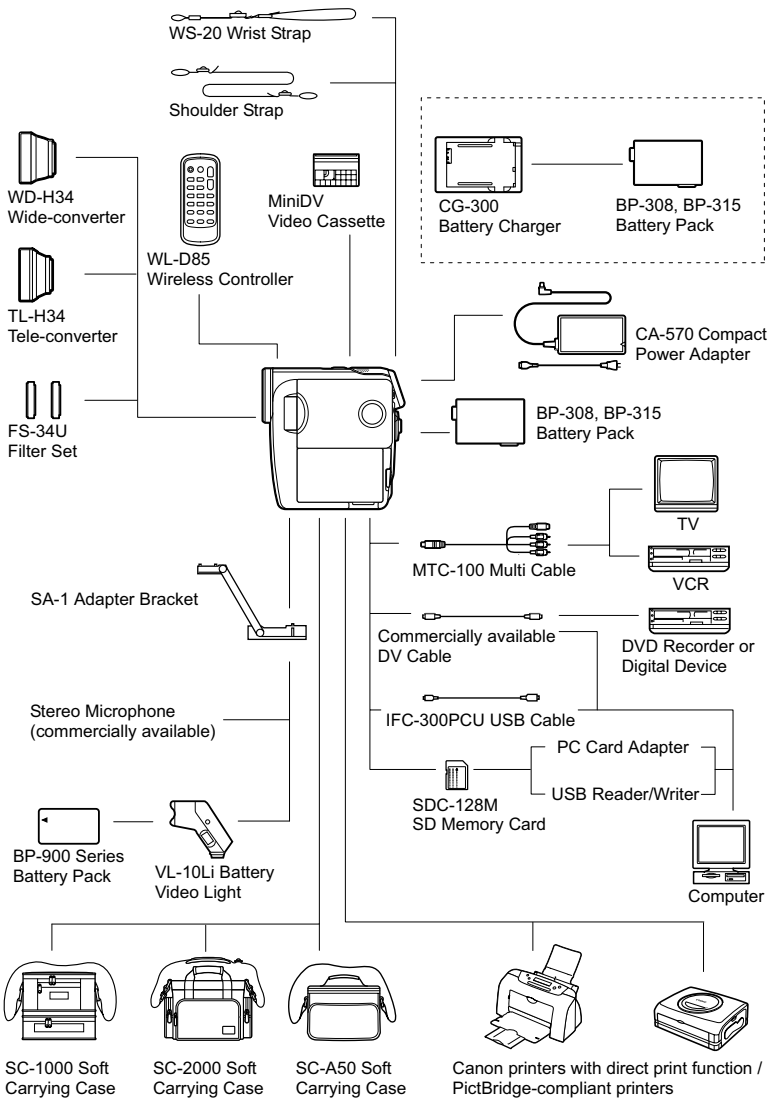
You can use the compact power adapter to operate the camcorder and to charge battery packs in any country with power supply between 100 and 240 V AC, 50/60 Hz. Consult the Canon Service Center for information on plug adapters for overseas use.

Playback on a TV Screen

You can only play back your recordings on TVs with NTSC system. The NTSC system is used in the following countries/areas:

American Samoa, Antigua, Aruba, Bahamas, Barbados, Bermuda, Bolivia, Canada, Chile, Columbia, Costa Rica, Cuba, Ecuador, El Salvador, Guam, Guatemala, Greenland, Haiti, Honduras, Jamaica, Japan, Korea, Mexico, Micronesia, Myanmar, Nicaragua, Panama, Peru, Philippines, Puerto Rico, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Surinam, Taiwan, Trinidad and Tobago, USA, Venezuela, Virgin Islands.

System Diagram (Availability differs from area to area)



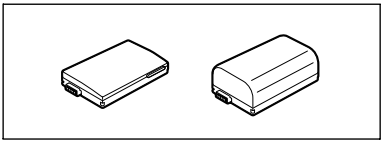
Optional Accessories

Call or visit your local retailer/dealer for genuine Canon video accessories. You can also obtain genuine accessories for your Canon camcorder by calling: 1-800-828-4040, Canon U.S.A. Information Center.

Use of genuine Canon accessories is recommended.
This product is designed to achieve excellent performance when used with genuine Canon accessories. Canon shall not be liable for any damage to this product and/or accidents such as fire, etc., caused by the malfunction of non-genuine Canon accessories (e.g., a leakage and/or explosion of a battery pack). Please note that this warranty does not apply to repairs arising out of the malfunction of non-genuine Canon accessories, although you may request such repairs on a chargeable basis.

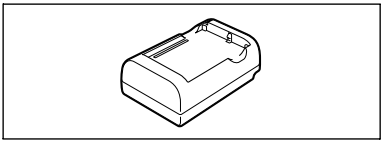
Battery Packs

When you need extra battery packs, select from the following: BP-308, BP-315.



CG-300 Battery Charger

Use the battery charger for charging the battery packs. It plugs directly into a power outlet without a cable.

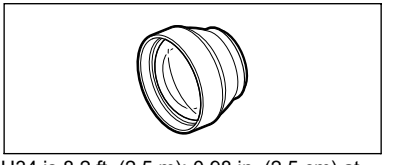


Battery Pack	Charging Time
BP-308	105 min.
BP-315	160 min.

Charging time varies according to the charging condition.

TL-H34 Tele-converter

This Tele-converter lens increases the focal length of the camcorder lens by a factor of 1.5.

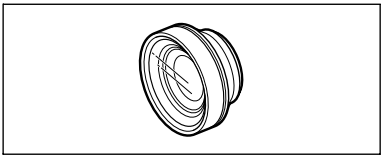


- The image stabilizer is not as effective when the Tele-converter is attached.
- The minimum focusing distance with the TL-H34 is 8.2 ft. (2.5 m); 0.98 in. (2.5 cm) at maximum wide angle.
- When the Tele-converter is attached, a shadow may appear in the picture when you record with flash or assist lamp.

WD-H34 Wide-converter

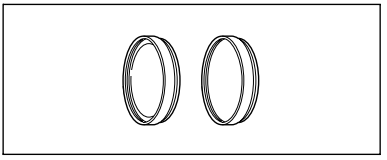
This lens decreases focal length by a factor of 0.7, giving you a wide perspective for indoor shots or panoramic views.

- When the Wide-converter is attached, a shadow may appear in the picture when you record with flash or assist lamp.



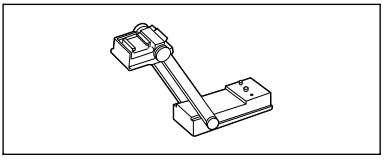
FS-34U Filter Set

Neutral density and MC protector filters help you to control difficult lighting conditions.



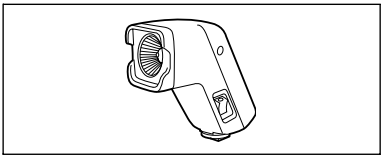
SA-1 Adapter Bracket

Use the adapter bracket to attach a video light or microphone to the camcorder.



VL-10Li Battery Video Light

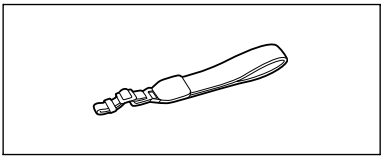
This compact yet powerful video light can be used for both indoor and outdoor shooting. It attaches to the camcorder's accessory shoe and is powered by BP-900 series battery packs.



- Approximate usage time: BP-915: 60 min., BP-930: 120 min., BP-945: 170 min.
- BP-900 series battery packs are charged with the CA-920 Compact Power Adapter or CH-910 Dual Battery Charger/Holder.

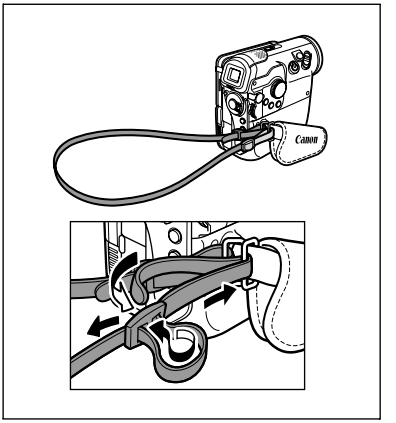
WS-20 Wrist Strap

Use this for extra additional protection for active shooting.



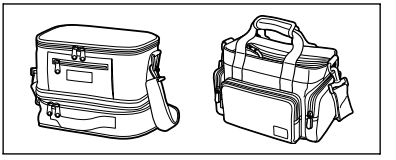
Shoulder Strap

You can attach a shoulder strap for more security and portability.
Pass the ends through the strap mount and adjust the length of the strap.



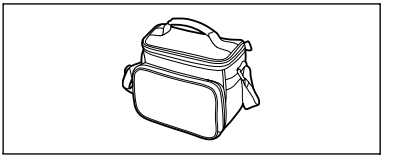
SC-1000/SC-2000 Soft Carrying Case

A handy camcorder bag with padded compartments and plenty of space for accessories.



SC-A50 Soft Carrying Case

This lightweight bag keeps the camcorder within easy reach without weighing you down or getting in the way.



This mark identifies genuine Canon video accessories. When you use Canon video equipment, we recommend Canon-brand accessories or products bearing the same mark.

Specifications

OPTURA600

E

System

Video Recording System	2 rotary heads, helical scanning DV system (consumer digital VCR SD system), digital component recording
Audio Recording System	PCM digital sound: 16 bit (48 kHz/2 ch); 12 bit (32 kHz/4 ch)
Television System	EIA standard (525 lines, 60 fields) NTSC color signal
Image Sensor	1/2.8-inch CCD, approx. 4,290,000 pixels Effective pixels: tape approx. 3,500,000 pixels card approx. 4,000,000 pixels
Tape Format	Videocassettes bearing the “MiniDV” mark.
Tape Speed	SP: 0.74 ips (18.81 mm/s), LP: 0.49 ips (12.56 mm/s)
Maximum Recording Time (80 min. cassette)	SP: 80 min., LP: 120 min.
Fast Forward/Rewind Time	Approx. 2 min. 20 sec. (with a 60 min. cassette)
LCD Screen	2.5-inch. TFT color, approx. 123,000 pixels
Viewfinder	0.33-inch. TFT color, approx. 113,000 pixels
Microphone	Stereo electret condenser microphone
Lens	f=6.1-61 mm, f/1.8-3.0, 10x power zoom 35mm equivalent: Tape: 4:3 recording: 44.5-445 mm 16:9 recording (image stabilizer ON): 47.4-474 mm 16:9 recording (image stabilizer OFF): 45.4-454 mm Card: 41.6-416 mm
Lens Configuration	11 elements in 9 groups
Filter Diameter	34 mm
AF system	TTL autofocus, manual focusing possible
Minimum Focusing Distance	3.3 ft. (1 m); 0.39 in. (1 cm) on maximum wide angle
White Balance	Auto white balance, pre-set white balance (DAYLIGHT, SHADE, CLOUDY, TUNGSTEN, FLUORESCENT, FLUORESCENT H) or custom white balance
Minimum Illumination	0.6 lx (Night mode, Shutter speed set at 1/2)
Recommended Illumination	More than 100 lx
Image Stabilization	Electronic

Memory Card

Recording media	SD Memory Card*

* This camcorder has been tested with SD Memory Cards up to 2GB. Proper operation cannot be guaranteed for all memory cards.

Number of Recording Pixels	Still image: 2304 x 1736, 1632 x 1224, 1280 x 960, 640 x 480 pixels Movie: 320 x 240, 160 x 120 pixels, 15 frames/sec.
File Format	Design rule for Camera File system (DCF), Exif 2.2* compliant, DPOF compliant

* This camcorder supports Exif 2.2 (also called “Exif Print”). Exif Print is a standard for enhancing the communication between camcorders and printers. By connecting to an Exif Print-compliant printer, the camcorder’s image data at the time of shooting is used and optimized, yielding extremely high quality prints.

Image Compression Method	Still image: JPEG (compression: Super Fine, Fine, Normal) Movie: Video data: Motion JPEG, audio data: WAVE (monaural)

Input/Output Terminals

AV Terminal	10-pin multiconnector; Input/Output multipurpose Video: 1 Vp-p/75 ohms unbalanced S-Video: Luminance (Y) signal - 1 Vp-p/75 ohms; Chrominance (C) signal - 0.286 Vp-p/75 ohms Audio: Output: –10 dBV (47 kohm load)/3 kohms or less Input: –10 dBV/40 kohms or more
DV Terminal	Special 4-pin connector (IEEE 1394 compliant)
MIC Terminal	Ø3.5 mm stereo mini-jack –57 dBV (with 600 ohm mic)/5 kohms or more
Headphone Terminal	Ø3.5 mm stereo mini-jack
USB Terminal	mini-B

Power/Others

Power supply (rated)	7.4 V DC
Power consumption (AF on)	3.3 W (using viewfinder), 3.4 W (using LCD screen in normal brightness)
Operating temperature	32 – 104 °F (0 – 40 °C)
Dimensions (W x H x D)	2.0 x 4.0 x 4.0 in. (51 x 101 x 102 mm) excluding protrusions
Weight (camcorder body only)	14.5 oz. (410 g)

CA-570 Compact Power Adapter

Power supply	100 – 240 V AC, 50/60 Hz
Power consumption	17W
Rated output	8.4 V DC, 1.5 A
Operating temperature	32 – 104 °F (0 – 40 °C)
Dimensions	2.1 x 3.5 x 1.1 in. (52 x 90 x 29 mm)
Weight	4.8 oz. (135 g)

BP-308 Battery Pack

Battery type	Rechargeable Lithium Ion Battery
Rated voltage	7.4 V DC
Operating temperature	32 – 104 °F (0 – 40 °C)
Battery capacity	850 mAh
Dimensions	1.5 x 0.39 x 2.5 in. (39 x 10 x 63 mm)
Weight	1.4 oz. (40 g)

SDC-16M SD Memory Card

Capacity	16 MB
Interface	SD Memory Card standard
Operating temperature	32 – 104 °F (0 – 40 °C)
Dimensions	1.3 x 0.94 x 0.08 in. (32 x 24 x 2.1 mm)
Weight	0.07 oz. (2 g)

Weight and dimensions are approximate. Errors and omissions excepted. Subject to change without notice.

Product Codes

Provided Accessories

Lens Cap	D52-0310-000
CA-570 Compact Power Adapter	8468A002AA
BP-308 Battery Pack	0781B003AA
WL-D85 Wireless Controller	D83-0712-000
MTC-100 Multi Cable	0783B001AA
IFC-300PCU USB Cable	6906A001AA

Optional Accessories

BP-315 Battery Pack	0782B002AA
CG-300 Battery Charger	0784B002AA
TL-H34 Tele-converter	9583A001AA
WD-H34 Wide-converter	9584A001AA
FS-34U Filter Set	8081A001AA
WS-20 Wrist Strap	3118A002AA (D81-0190-202)
SC-2000 Soft Carrying Case	9389A001AA
SC-1000 Soft Carrying Case	3083A002AA (D81-1200-201)
SC-A50 Soft Carrying Case	D81-1302-201
VL-10Li Battery Video Light	3140A002AA (D86-0081-201)
JR 7.2V 10WF Halogen Bulb	3141A002AA (D86-0090-201)
DVM-CL DV Cleaning Cassette	3134A002AA (D36-0032-201)

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U.S.A.

CANON CONSUMER DIGITAL VIDEO EQUIPMENT LIMITED WARRANTY FOR THE UNITED STATES

The warranty set forward below is given by Canon U.S.A., Inc. with respect to equipment purchased in the United States. The limited warranty is only effective upon presentation of your Bill of Sale or other proof of purchase.
Canon consumer digital video equipment is warranted under normal, non-commercial, personal use, against defective materials or workmanship as follows:
Parts: Defective parts will be exchanged for new parts or comparable rebuilt parts for a period of ONE YEAR from the date of original purchase, except for a defective Video Head, which will be exchanged for a period of three months from the date of purchase.
Labor: For a period of ONE YEAR from the date of original purchase, labor will be provided free of charge by our factory service centers or designated service facilities located in the United States.
When returning equipment under this warranty, you must pre-pay the shipping charges, and you must enclose the Bill of Sale or other proof of purchase with a complete explanation of the problem. During your ONE-YEAR warranty period, repairs will be made and the equipment return-shipped to you free of charge. After your warranty period is over, you will be given an estimate of the cost of repair and an opportunity to approve or disapprove of the repair expense before it is incurred. If you approve, repairs will be made and the equipment return-shipped to you. (shipping charges apply). If you disapprove, we will return-ship the equipment at no charge to you.

Non-Canon brand peripheral equipment and software which may be distributed with Canon DV camcorders are sold "AS IS" without warranty of any kind by CUSA, including any implied warranty regarding merchantability or fitness for a particular purpose. The sole warranty with respect to such non-Canon brand items is given by the manufacturer or producer thereof.
CUSA shall have no responsibility under this limited warranty for use of Canon DV Camcorders in conjunction with incompatible peripheral equipment and incompatible software.

In order to obtain warranty service, contact the authorized Canon retail dealer from whom you purchased the DV Camcorder or call the CANON INFORMATION CENTER AT 1-800-828-4040). You will be directed to the nearest service facility for your product.

This Limited Warranty covers all defects encountered in normal use of the equipment and does not apply in the following cases:

A) Loss or damage to the equipment due to abuse, mishandling, accident, improper maintenance, or failure to follow operating instructions;
B) If the equipment is defective as a result of leaking batteries, sand, dirt or water damage;
C) If defects or damages are caused by the use of unauthorized parts or by service other than our authorized agent;
D) If the equipment is used for commercial or industrial use.

This Limited Warranty does not cover cabinet (exterior finish), video cassette tape, head cleanings, nor does it apply to equipment purchased outside the United States. This warranty does not cover units sold to rental firms, military operations, hotels, schools, hospitals or for other commercial, industrial, or institutional applications. These uses are covered only by such specific warranty as Canon may issue with such sales.
This Limited Warranty does not apply to accessories or consumables for the DV Camcorder, which are sold "AS IS", without warranty of any kind by CUSA.
Please retain this warranty card and your Bill of Sale as a permanent record of your purchase. This card is most important in order to be sure you are contacted right away should there be a safety inspection, modification or product recall under applicable laws or regulations.

NO IMPLIED WARRANTY, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE APPLIES TO THIS EQUIPMENT AFTER THE APPLICABLE PERIOD OF EXPRESS WARRANTY OR GUARANTY, EXCEPT AS MENTIONED ABOVE, GIVEN BY ANY PERSON, FIRM OR CORPORATION WITH RESPECT TO THIS EQUIPMENT SHALL BIND THE UNDERSIGNED. (SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU). CUSA SHALL NOT BE LIABLE FOR LOSS OF REVENUES OR PROFITS, EXPENSE FOR SUBSTITUTE EQUIPMENT OR SERVICE, STORAGE CHARGES, LOSS OF DATA, OR ANY OTHER SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES CAUSED BY THE USE, MISUSE OR INABILITY TO USE THE DV CAMCORDER, REGARDLESS OF THE LEGAL THEORY ON WHICH THE CLAIM IS BASED, AND EVEN IF CUSA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. NOR SHALL RECOVERY OF ANY KIND AGAINST CUSA BE GREATER THAN THE PURCHASE PRICE OF THE DV CAMCORDER SOLD BY CUSA AND CAUSING THE ALLEGED DAMAGE. WITHOUT LIMITING THE FOREGOING, YOU ASSUME ALL RISK AND LIABILITY FOR LOSS, DAMAGE OR INJURY TO YOU AND YOUR PROPERTY AND TO OTHERS AND THEIR PROPERTY ARISING OUT OF USE, MISUSE OR INABILITY TO USE THE DV CAMCORDER NOT CAUSED DIRECTLY BY THE NEGLIGENCE OF CUSA. (SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU).THIS WARRANTY SHALL NOT EXTEND TO ANYONE OTHER THAN THE ORIGINAL PURCHASER OF THIS EQUIPMENT OR THE PERSON FOR WHOM IT WAS PURCHASED AS A GIFT.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.
CANON U.S.A., INC.

CANADA

CANON CONSUMER DIGITAL VIDEO EQUIPMENT LIMITED WARRANTY

The limited warranty set forth below is given by Canon Canada Inc. (“Canon Canada”) with respect to Canon digital video equipment purchased in Canada. This limited warranty is only effective upon presentation of a bill of sale or other proof of purchase for this Canon digital video equipment to a Canon Service Facility when repairs are required.
Canon consumer video digital equipment is warranted under normal, non-commercial, personal use, against defective materials or workmanship as follows:
Parts: Defective parts will be exchanged for new parts or, at Canon Canada’s option, comparable rebuilt parts for a period of one year from the date of original purchase, except Video Heads which will be exchanged for a period of 3 months from the date of purchase.
Labour: For a period of one year from the date of original purchase, labour will be provided free of charge by our Canon Service Facilities in Canada.
This limited warranty covers all defects except where:
(a) The loss or damage to the product results from:
- i) accident, natural disaster, mishandling, abuse, neglect, unauthorized product modification or failure to follow instructions contained in the instruction manual;
- ii) the use of accessories, attachments, products, supplies, parts or devices with this Canon product that do not conform to Canon specifications or that cause abnormally frequent service problems;
- iii) repairs or services performed by any party other than a Canon Service Facility;
- iv) defective batteries or any exposure to water, sand or dirt;
- v) shipping (claim must be presented to the shipper);

(b) Any serial number on the video equipment is altered or removed.
(c) The digital video equipment is used for commercial, professional or industrial purposes.
This limited warranty does not cover the cabinet (exterior finish) of the digital video equipment, video cassette tapes, head cleanings, nor does it apply to digital video equipment purchased outside Canada.

TO OBTAIN WARRANTY SERVICE

Ship your Canon digital video equipment in its original carton, box or equivalent, properly packed, fully insured with shipping charges prepaid, together with a copy of your bill of sale or other proof of purchase and a description of the problem to any of the Canon Service Facilities in Canada.

LIMITATIONS

Except as otherwise required by applicable legislation, this warranty is in lieu of all other warranties, conditions, guarantees or representations, express or implied, statutory or otherwise, relative to this Canon product, including implied warranties or conditions of merchantability or fitness for a particular purpose.
Canon Canada assumes no liability for special, consequential or incidental damages or loss that may arise, whether on account of negligence or otherwise, from the use, misuse or inability to use this Canon product (including loss of profit, revenue, video tapes or enjoyment) or from failure to conform to any express or implied warranties, conditions, guarantees or representations. Any recovery under this limited warranty shall not exceed the purchase price of the product. Canon Canada does not assume or authorize any other person to assume for Canon Canada any other liability with respect to this Canon product.
This warranty does not extend to any person other than the original purchaser of this Canon product or the person for whom it was purchased as a gift and states your exclusive remedy.

NOTICE TO CONSUMER

If you plan to take important videos or if the product has not been used for some time, please check all functions with the instruction book before using it.

Canon

CANON INC.

U.S.A.	**CANON U.S.A., INC. NEW JERSEY OFFICE** 100 Jamesburg Road, Jamesburg, NJ 08831 USA **CANON U.S.A., INC. CHICAGO OFFICE** 100 Park Blvd., Itasca, IL 60143 USA **CANON U.S.A., INC. LOS ANGELES OFFICE** 15955 Alton Parkway, Irvine, CA 92618 USA **CANON U.S.A., INC. HONOLULU OFFICE** 210 Ward Avenue, Suite 200, Honolulu, HI 96814 USA ● **If you have any questions, call the Canon U.S.A. Information Center toll-free at 1-800-828-4040 (U.S.A. only).**
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